# COTTON

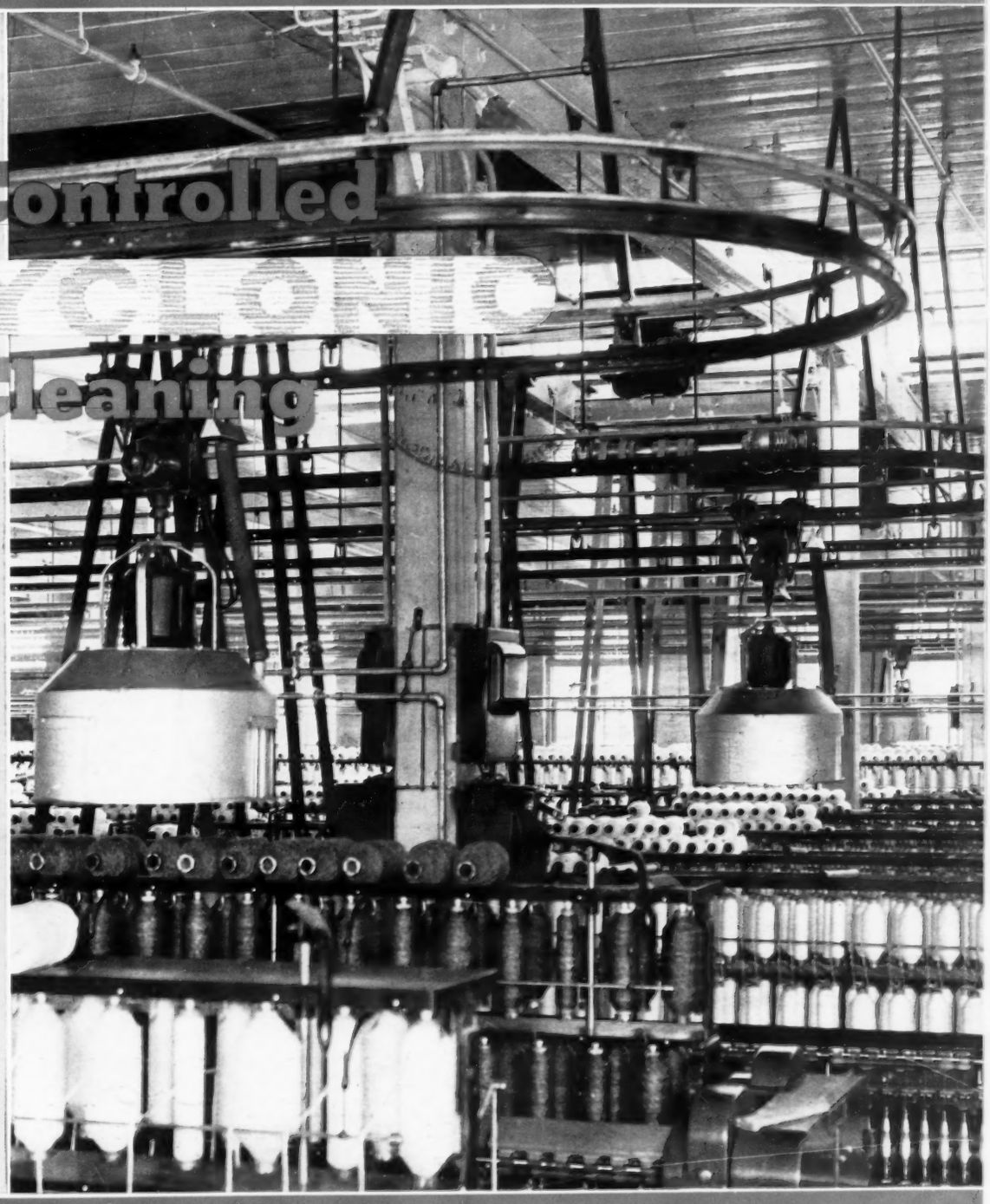
SERVING THE

# Textile Industries

APRIL, 1938



## Controlled CYCLONIC Cleaning



Repeated field tests under actual operating conditions prove that more lint is removed when a swirling action is set up in air currents from automatic cleaners.

This cyclonic action must be accurately controlled and carefully directed so that while roving is protected against damage, sufficient velocity reaches the lower bobbins and under the roll stand to prevent accumulation of fly.

With these features the American MonoRail system eliminates cleaning problems over spinners, twisters, and warpers.

A new book explaining further advantages will be sent on request. Write to American MonoRail Co., 13106 Athens Ave., Cleveland, Ohio.

**AMERICAN MONORAIL** *Automatic* **OVERHEAD CLEANERS**

*for Spinning, Winding, Twisting and Warping*

# PEPPERELL

## DEMANDS PAINSTAKING ACCURACY

## *The* PEPPERELL *News* SHEET

PEPPERELL FABRICS

### ALWAYS UNDER CONTROL

The laboratory routine is set up in such a way that samples are received from each spinning frame in the mill at regular intervals. These samples are tested for evenness of twist and size. Similar samples are obtained from each slubber, intermediate, and fly frame at equal intervals. The net result is that once every two weeks, every spinning frame in the mill has had its product tested in the laboratory. If changes are necessary in the manufacturing process, they are made instantly. If every sample of yarn shows perfect results in its tests, everything is in order.

Daily tests in the Pepperell Laboratory are made on all warp and filling yarns from each weave room to determine yarn number and breaking strength. Daily tests are made on yarns from various slashing machines to determine moisture content, strength and elasticity.

Semi-weekly examinations are made of all styles and widths of cloth as it comes from the loom before it goes to the bleachery, to check width, weight, warp and filling strength. Regular examinations are made of finished cloth as it comes from the bleachery to check width, weight, warp and filling strength.

**It is our privilege to work with the makers of Pepperell Fabrics, as architects and engineers, in the development of their southern properties. To us was given the responsibility of designing their Lindale dye plant to house one of the largest indigo dyeing machines in the world. Naturally, we are proud of our association with the PEPPERELL and its management.**

## ROBERT AND COMPANY

INCORPORATED

LAWRENCE WOOD ROBERT, JR., *President*

*Architects and Engineers*

ATLANTA, GA.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Entered as second-class matter at the Post Office, Dalton, Ga., under the Act of Congress of March 3, 1879.

# Turn Your Old E Model Looms Into New X Models

Replacing Your Old Looms with New High Speed Looms NOW While Business is Quiet Will Put Your Mill in Position to

## Make Money from the Start of Good Times

And When the Succeeding Period of Dull Times Rolls Around These New Looms Also Will

## Help Keep You Out of the Red

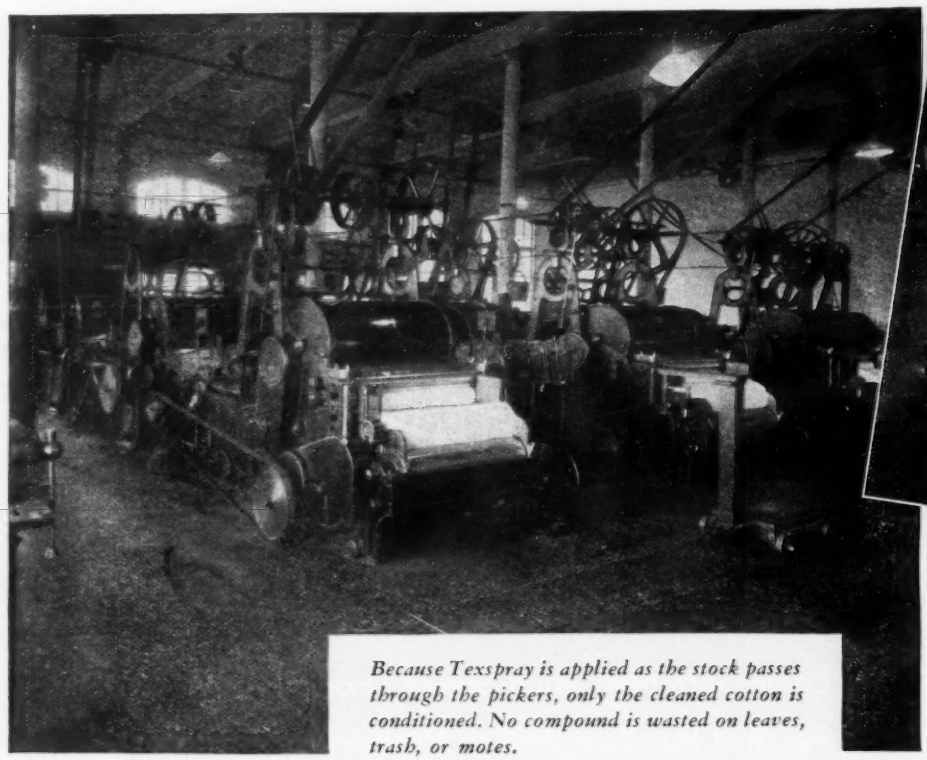
Plan Ahead ❖ ❖ You Need High Speed Looms in Good Times and Bad Times

## DRAPER CORPORATION

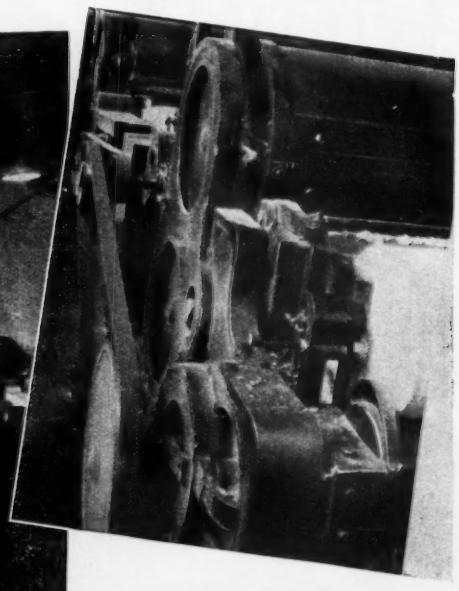
Atlanta Georgia Hopedale Massachusetts Spartanburg S C

# FLY *reduced as much as* 70%

## in your card room alone!



*Because Texspray is applied as the stock passes through the pickers, only the cleaned cotton is conditioned. No compound is wasted on leaves, trash, or motes.*



*Texspray is sprayed on the cotton where it enters the beater chamber of the picker. This is the only place where each and every fibre can be conditioned uniformly. Here, only cotton that goes into the finished product is sprayed. This means no waste of compound.*

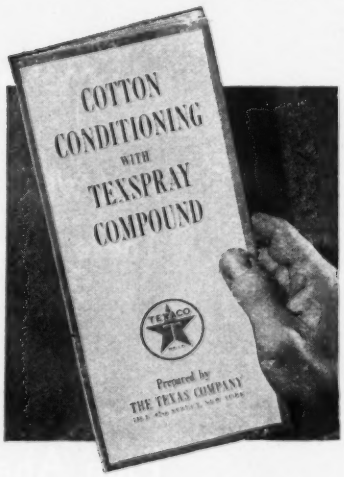
HEALTHIER working condition assured! Clearing the atmosphere in your card room is one of the many practical benefits you'll receive from installing the Texspray System of cotton conditioning.

Immediately the Texsprayed stock is being run, card room personnel feel better, work better, produce a better product.

So it goes—from card room to looms or knitting machines; every process throughout the mill showing improvement.

Spinning mill men will tell you that it is easier to control counts, and produce more uniform yarn . . . using stock conditioned by Texspray Process.

We are prepared to install the Texspray System in cotton manufacturing centers of the United States. Investigate this *successful* system now. The Texas Company, 135 E. 42nd St., N. Y. C.




Be sure you read this booklet. *It points out the benefits to you of cotton conditioning and how simple this system is. A free copy is yours for the asking . . . with no obligation.*

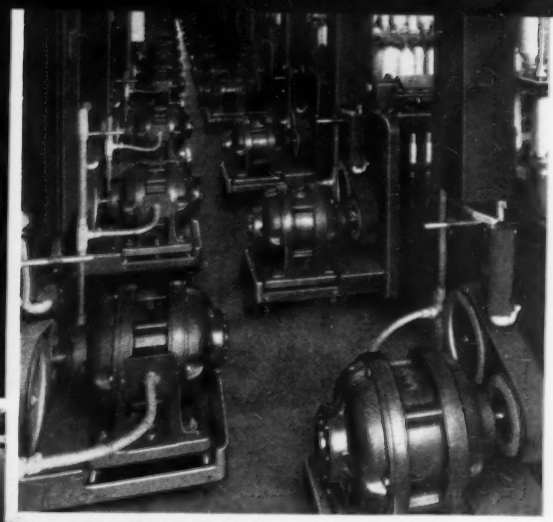
*Cotton Conditioning* WITH

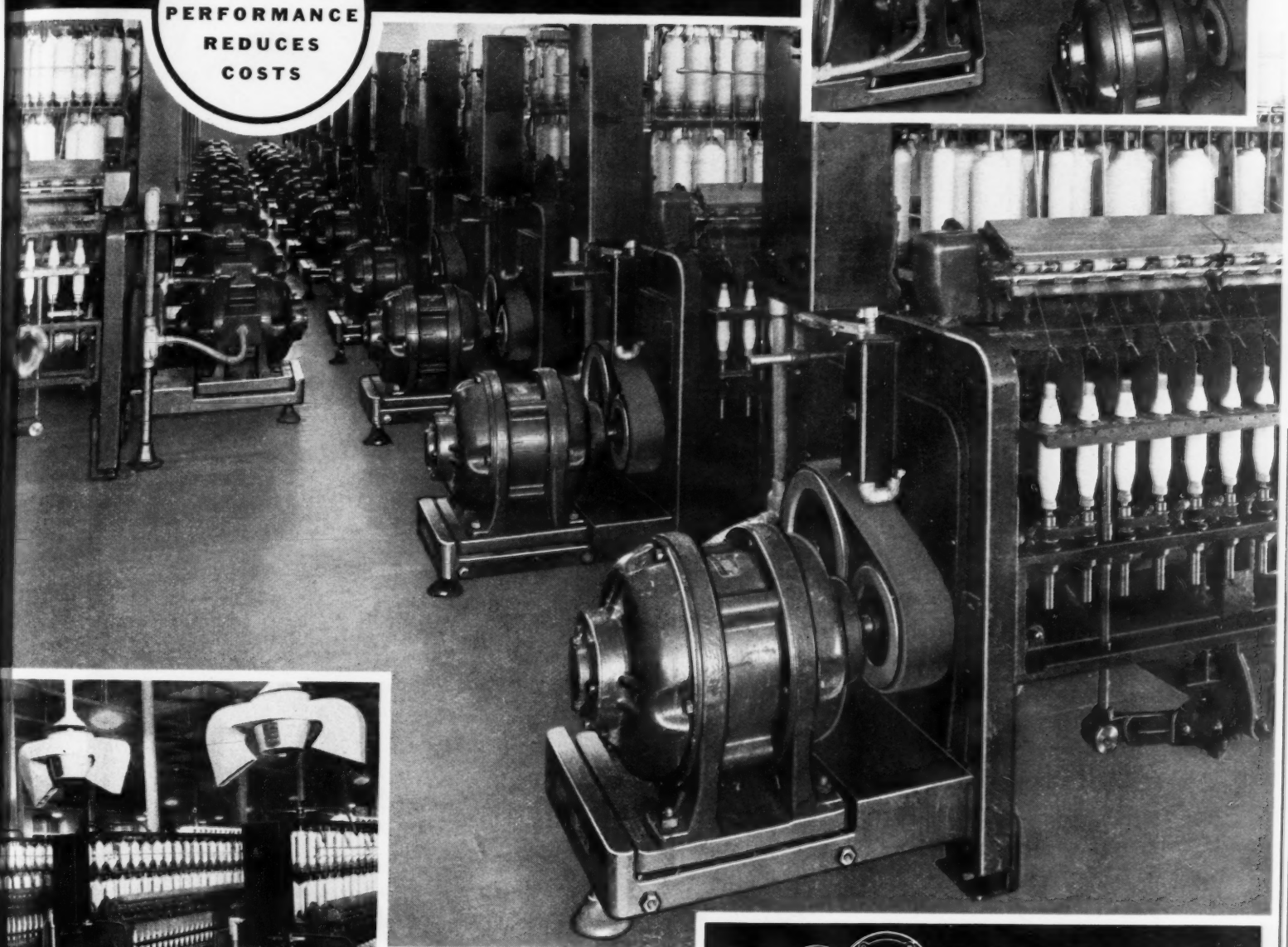
**TEXACO TEXSPRAY** *Compound*

# Typical Rockwood Drive Performance –

## AMERICAN SPINNING COMPANY GREENVILLE, S.C.

**IMPROVES MACHINE PERFORMANCE REDUCES COSTS**





*Rockwood Drives on spinning frames at American Spinning Division, Florence Mills, Greenville, S. C. These are Whitin modern warp frames, 300 spindles each. Pictures courtesy of Whitin Machine Works. The bases are Rockwood Shelf Type Spinning Frame Drives — handsome appearing, neat, compact, efficient and off the floor.*

**ROCKWOOD PIVOTED MOTOR DRIVE**

## ASSURES A BETTER QUALITY AT LESS COST

RENOVATION work has made the American Spinning Company at Greenville, S. C., one of the outstanding mills in the country. Rockwood Drives as shown were chosen to drive the new Whitin Warp and Filling Frames. It is quite the vogue to include Rockwood *pivoted-motor* Drives in the modernizing of cotton textile mills. This is because thousands of Rockwood drives in use establish them as the accepted standard for textile machinery. *Machine output is not only increased but of a better quality.* Coupled with almost utter freedom from drive trouble, power consumption and maintenance are both decreased.

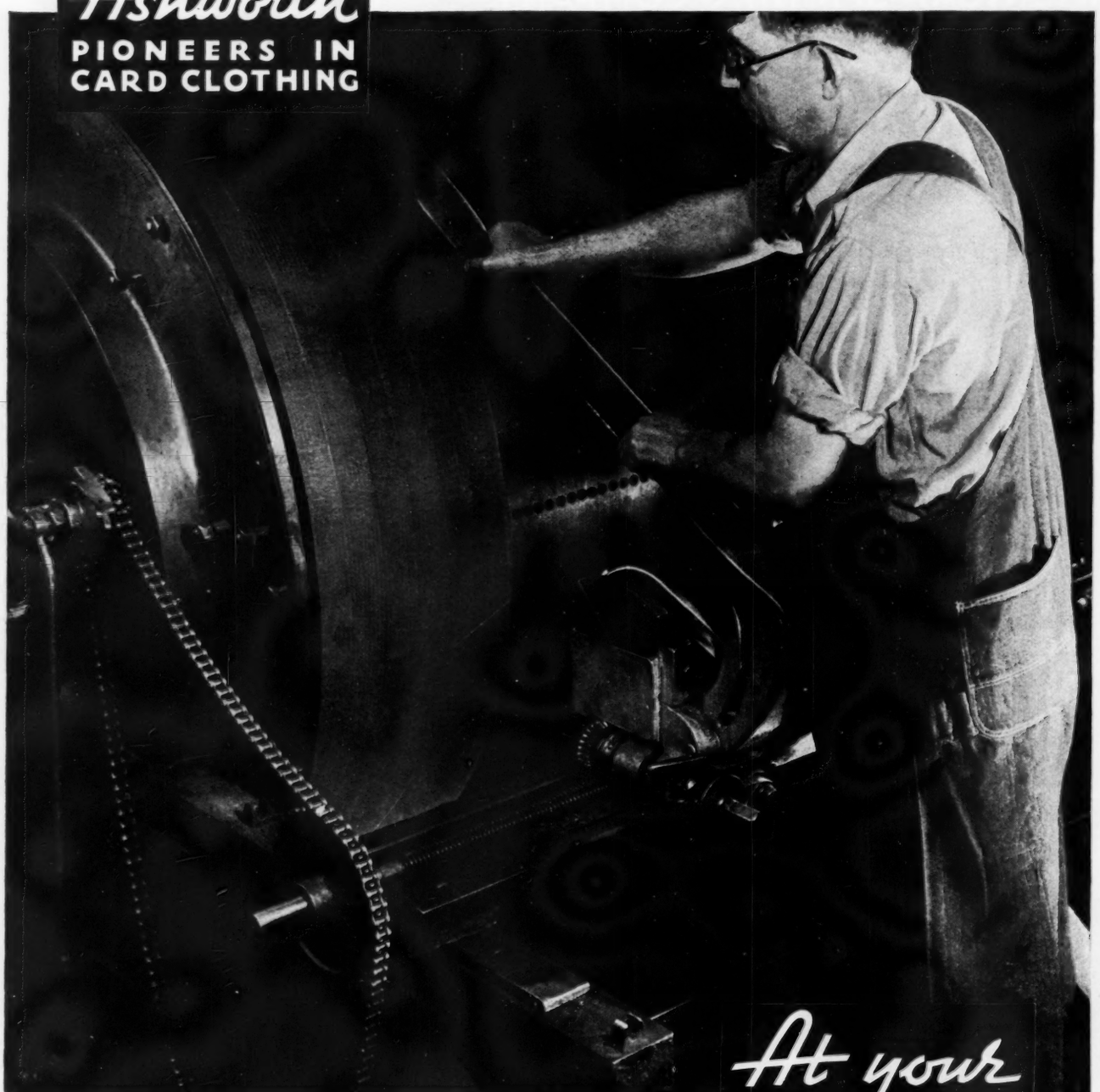
The drives pictured are individual Rockwood Drives for spinning and twister frames. Another Rockwood Drive, growing in popularity, is the individual Rockwood pivoted Loom drive. Where lineshafts are modernized the Rockwood "no maintenance" Lineshaft Drive has won a clear cut preference.

IF YOU ARE PLANNING TO BUY NEW MACHINERY— OR TO CHANGE YOUR OLD MACHINES IT WILL PAY YOU TO HAVE A ROCKWOOD ENGINEER CALL. He will point out the savings you can make. Any number of Rockwood Drives can be installed on a free trial basis. Each drive you buy is guaranteed to be satisfactory. LET US HEAR FROM YOU.

**ROCKWOOD MANUFACTURING CO., INDIANAPOLIS, IND**

*Ashworth*

**PIONEERS IN CARD CLOTHING**



*At your Service*

**CARD CLOTHING FOR CYLINDERS AND DOFFERS: FITTERS FURNISHED IF REQUIRED**

We maintain at all our plants a stock of card clothing of standard counts and foundations. Furthermore, in cases where mills are not equipped to clothe their cards themselves, we can furnish expert fitters and suitable machinery for the purpose.

We would welcome an opportunity to consult with you on your card clothing problems.

**ASHWORTH BROS., Inc., Woolen Div., AMERICAN CARD CLOTHING CO.**

FACTORIES in Fall River, Worcester and Philadelphia; SALES OFFICES AND REPAIR SHOPS in Charlotte, Atlanta and Greenville; SOUTHWESTERN REPRESENTATIVE: Textile Supply Company, Dallas, Texas.

PRODUCTS AND SERVICES: Card Clothing for Cotton, Wool, Worsted, Silk and Asbestos Cards and for All Types of Napping Machinery . . Brusher Clothing and Card Clothing for Special Purposes . . Lickerin Wire and Garnet Wire . . Sole Distributors for Platt's Metallic Wire . . Lickerins and Top Flats Reclothed at All Plants.

# *Whitin* ANNOUNCES

## The addition of the well known

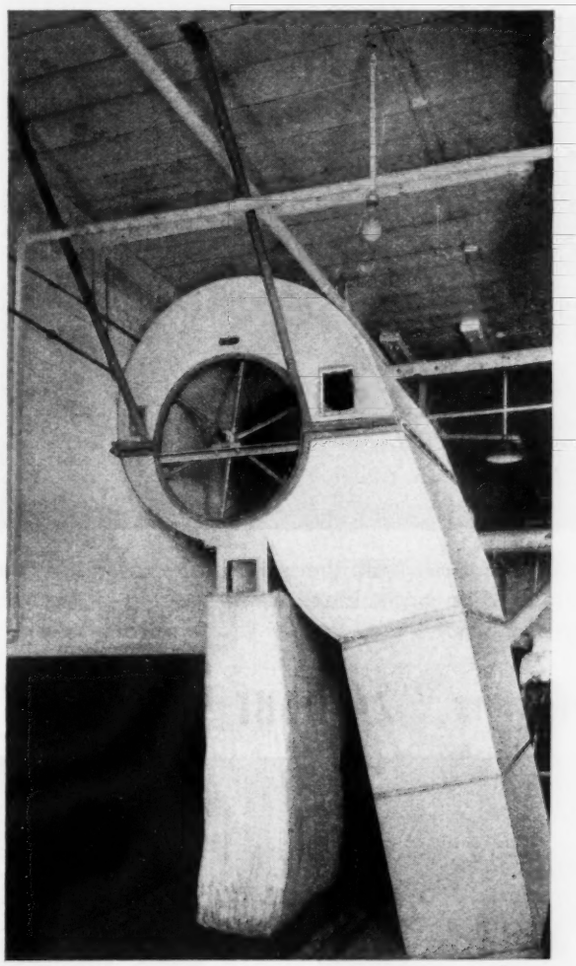
## KNOWLTON & NEWTON

## *Patented*

## RETURN AIR CONDENSER

## *to its line of*

## TEXTILE MACHINERY



Knowlton & Newton Company, Inc., designers and builders of processing equipment for textile mills, take pleasure in announcing the appointment of the Whitin Machine Works as their licensed agent to make and sell the Knowlton and Newton Patented Return Air Condenser as associated with pickers. Knowlton & Newton Company will handle the napper end.

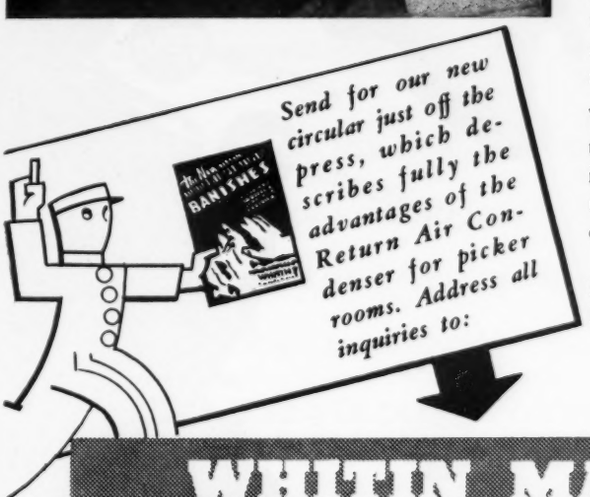
Patented in 1935, this splendid invention needs no introduction. It is already operating in many mills. We soon realized that it was worthy of being handled in a broader selling field, such as that of the Whitin organization together with our own. No affiliation could be more pleasing to us.

Records show that since the inception of the industry, attempts at home and abroad have been repeatedly made to cope with the problem of picker dust. Our condenser as it stands is the result of the process of elimination plus ingenuity.

Completely subjugated, the picker dust collected by the condenser drops from the device like sheets of cotton batting. Attached to the ceiling in any part of the room, the condenser quietly and efficiently does its work, requiring no attention. It is simple, clean cut, and withal inexpensive. One unit cares for one to nine picker fans.

An identification mark of the Knowlton & Newton machine is the slowness with which the screen rotates. This action, original and unique with us, attracts much interest inasmuch as its movement is hardly discernable.

We also have a small individual patented Return Air Condenser, to be attached to pickers, which takes care of each picker fan individually, confining the air within the picker. We recommend, however, the large single unit in preference to individual condensers.


BANISHES
*Send for our new circular just off the press, which describes fully the advantages of the Return Air Condenser for picker rooms. Address all inquiries to:*

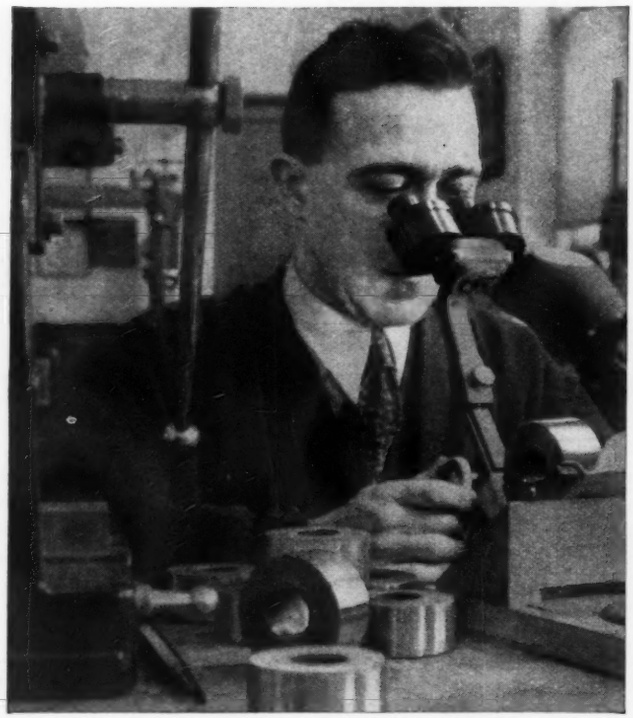
Lowell, Mass
February 18, 1938.

*Harry W. Knowlton*

*Pres. & Treas.*
KNOWLTON & NEWTON COMPANY, INC.

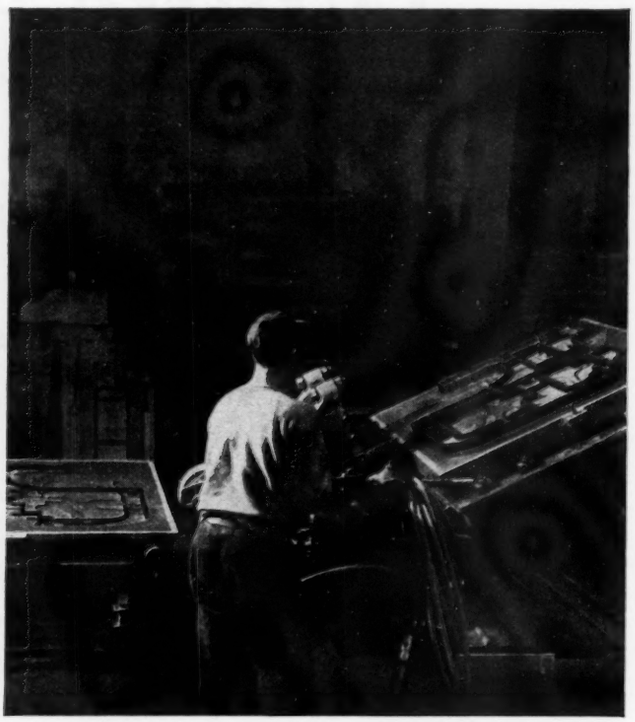
**WHITIN MACHINE WORKS**
**WHITINSVILLE, MASSACHUSETTS**
CHARLOTTE, N. C. ATLANTA, GA.

## WHAT IS "Material Analysis"?



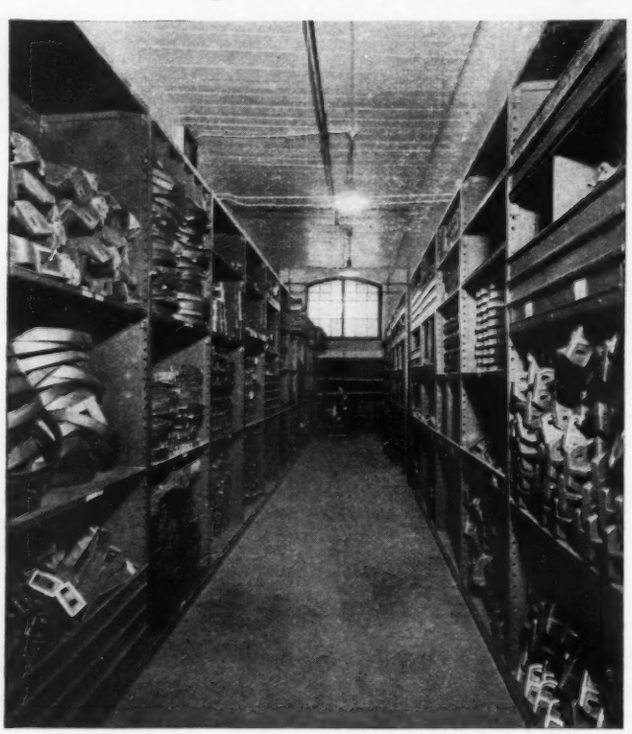
All material going into the manufacture of C & K parts is acceptable only after Laboratory Inspection.

## WHAT ARE "Machine Plates"?



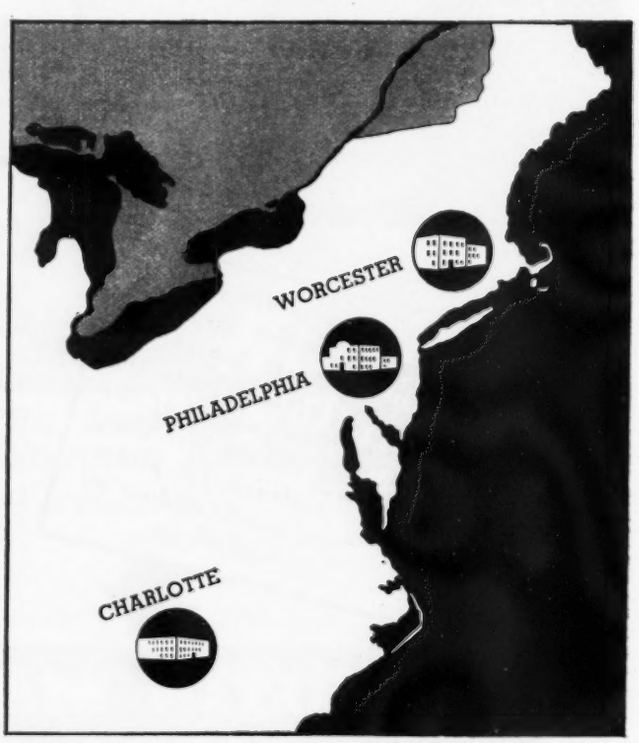
Foundry Robots. All the skill of an ancient trade transferred to a machine. Every casting a carbon copy likeness.

## WHAT IS "Up-to-date Warehousing"?



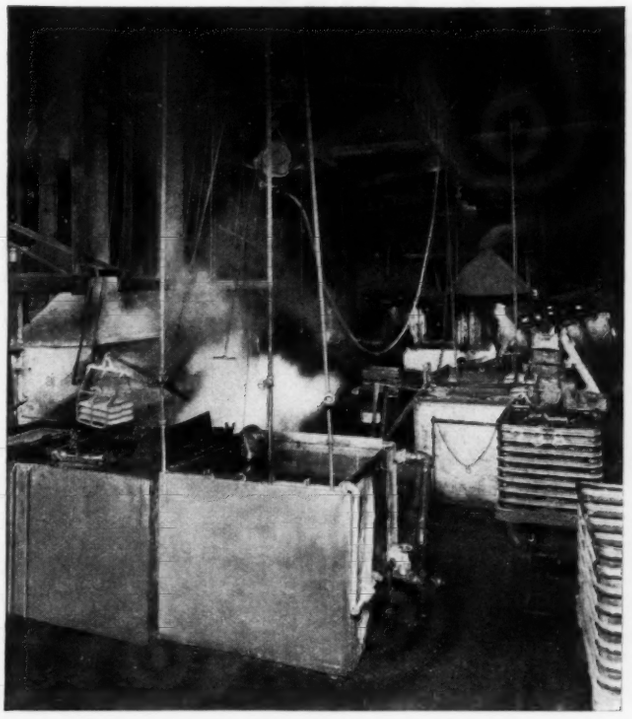
Over 12,000 separate items are carried in warehouse. If any three customers order the same part within a year it becomes a stock item—immediately available.

## WHAT IS "24-hour Service"?



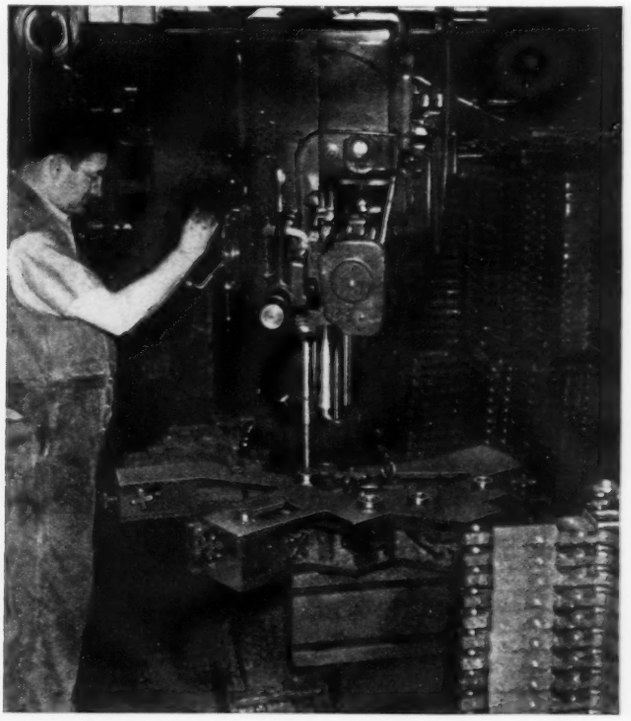

80% of all orders received at Worcester, Philadelphia and Charlotte can be shipped within 24 hours of receipt.

## WHAT IS "Heat Treating"?



All steel parts—after manufacture—are given a scientific treatment determined upon by the work the part has to do in the loom.

## WHAT ARE "Jigs and Fixtures"?



Mechanical watch dogs in the machine shop, on guard for accuracy . . . A casting and a cutting tool add up to anything. But between the two put a fixture or jig to hold the casting and guide the tool. The result is more than a finished casting. You have an accurate loom part.

*Statements under pictures reflect the opinion of the majority of our customers who returned Supply Parts Ballots*

# WHY "C & K Parts for C & K Looms"?

**For the reasons pictured**

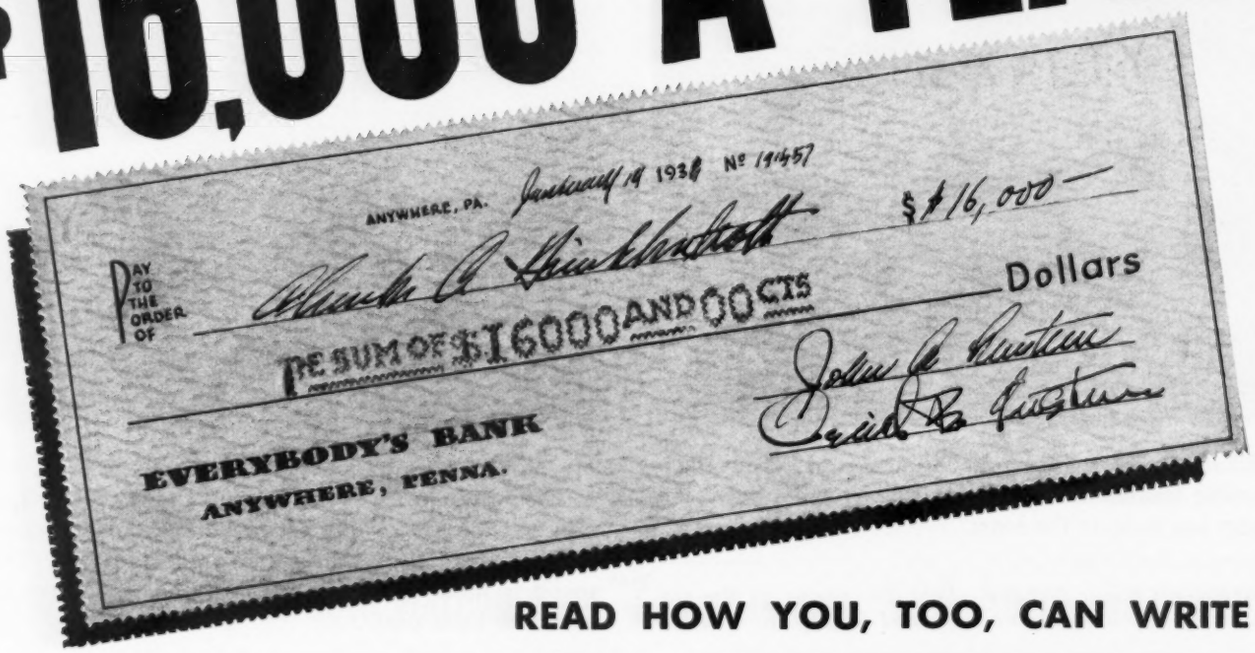
Who, more than the designer and builder, has at heart the performance and efficiency of your looms? Who is better equipped to know the proper design, material and treatment for a part? Parts for old type looms were not built by precision methods—yet they, as well as our latest products, are constantly being improved as your experience and ours suggest the need.

**CROMPTON & KNOWLES LOOM WORKS**

Allentown Philadelphia WORCESTER, MASSACHUSETTS Charlotte, North Carolina

CROMPTON & KNOWLES JACQUARD & SUPPLY CO., PAWTUCKET, RHODE ISLAND

# THIS MILL WRITES ITSELF A CHECK FOR $16,000 A YEAR


ANYWHERE, PA. January 19 1938 No 19457
$16,000—
PAY TO THE ORDER OF
THE SUM OF $16000 AND 00 CTS Dollars
EVERYBODY'S BANK
ANYWHERE, PENNA.

## READ HOW YOU, TOO, CAN WRITE YOURSELF A CHECK DURING THE NEXT TWELVE MONTHS

HERE'S a mill that turns out Leno weaves and similar light constructions. It operates four slashers. On these slashers Taylor engineers installed automatic temperature control. The result—better and more uniform sizing and conditioning of the yarn which, in turn, meant a 3% increase in weaving room efficiency. Actual cash saving, $8,565 a year.

Taylor Automatic Temperature Control also decreased size concentration, at the same time increasing the solids content of the yarn. Yearly savings here, $2,035. And, owing to less shedding and better retention of solids by the yarn, a 1½% saving in cotton was made. In dollars and cents this equaled $5,400, bringing the total yearly savings to $16,000.

Yet even this is not all. The mill published no figures on coal savings. Experience in other mills with Taylor Automatic Temperature Control shows this to be a considerable amount.

In all mills, Taylor Control is designed for increased weave room efficiency and better hand and appearance in the cloth. In most mills (as in this one), a material cotton saving is made. Under manual operation there is poor solid retention on the warp. This requires the use of slightly coarser yarn numbers in order to maintain cloth weights. Under Taylor automatic operation, with more uniform slashing, finer yarn numbers can be used. A saving in cotton naturally follows.

Taylor engineers serve textile mills so well because they apply fifteen years' extensive experience to the particular control requirements of individual mills. They can cut costs and increase operating efficiency in your mill, too. Whether your slasher room is equipped with the standard two-cylinder slasher or the new Saco-Lowell High Speed Slasher, Taylor Control will place your slashing operations on a new low-cost basis.

. . .

For complete information, see a Taylor representative. Or write direct to Taylor Instrument Companies, Rochester, N.Y. Plant also in Toronto, Canada. Manufacturers in Great Britain—Short & Mason, Ltd., London, England.

### 5 BIG REASONS WHY *Taylor Automatic Temperature Control is* COMPLETELY ENGINEERED

**1.** Taylor Textile Engineers survey your mill thoroughly.

**2.** They consider your installation an individual problem, recommending instruments and steam and size distribution to fit your specific needs.

**3.** Taylor Textile Engineers install complete systems to assure definite savings and profits.

**4.** They remain on the job to supervise the installation of every Taylor instrument.

**5.** Taylor Textile Engineers properly balance your slasher room operating conditions and help train your personnel in operating procedure to insure continuous efficiency.

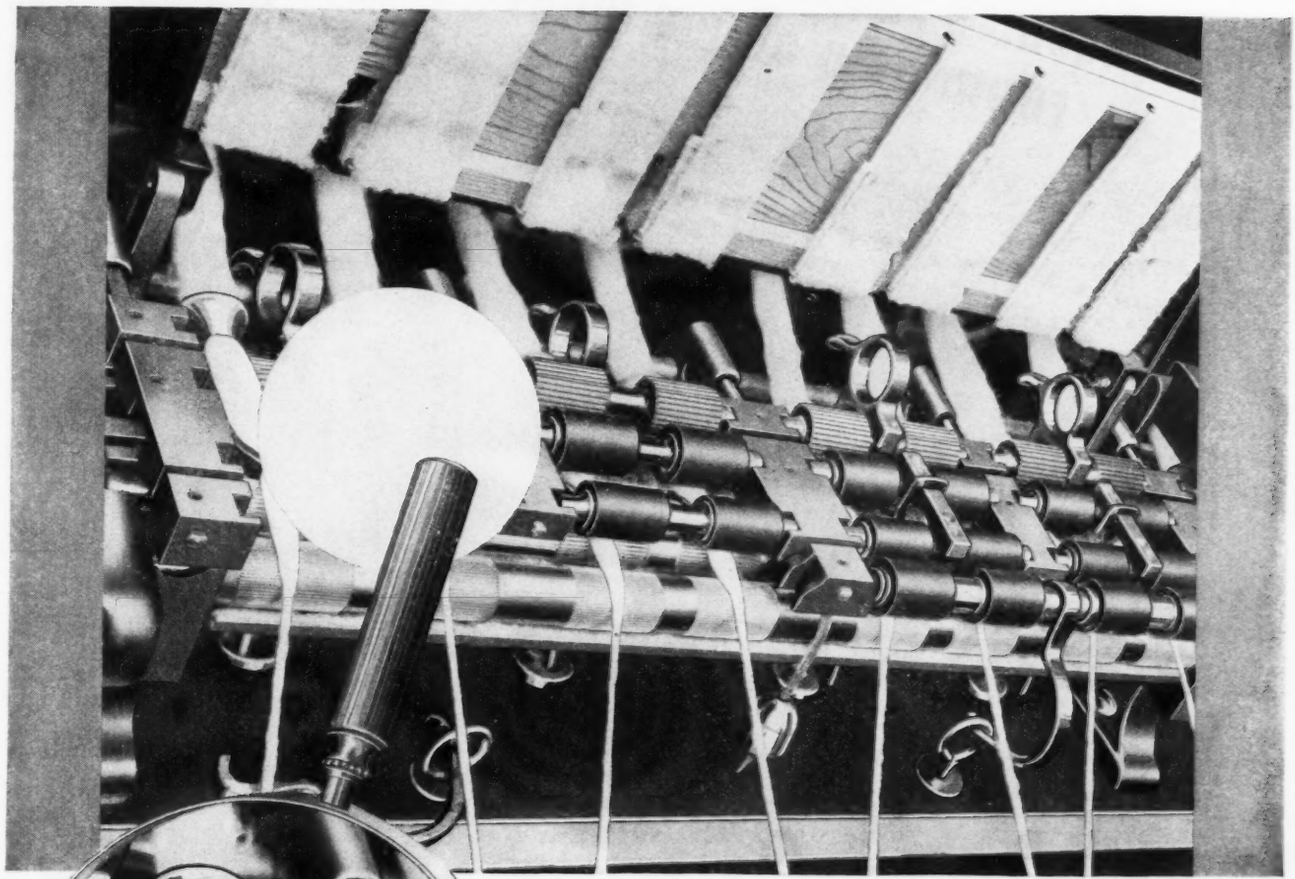
Taylor

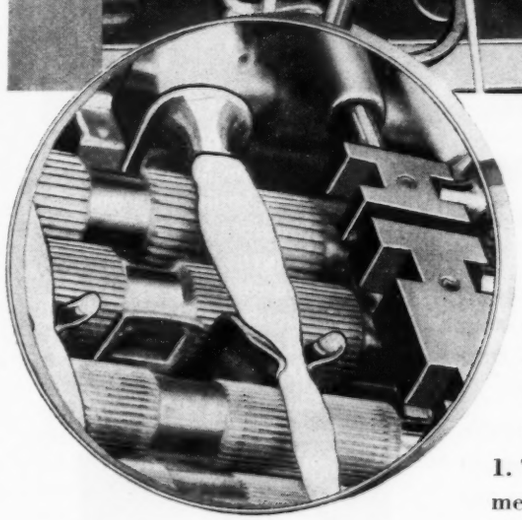
Indicating Recording Controlling

TEMPERATURE, PRESSURE, FLOW *and* LEVEL INSTRUMENTS

# SACO-LOWELL

# Unified Fibre Control





The drafting mechanism is extremely simple with all parts readily accessible.

## EFFECTIVE AND ACCURATE

## *Controlled Drafting*

### even with short variable or inferior staple

There are a number of outstanding improvements in this Saco-Lowell Model J1 Controlled Draft Roving Frame. Four are of major importance and are exclusively Saco-Lowell in design: . . . . . .

1. The Forming Trumpet, 2. The Weighting System, 3. The arrangement of the rolls and their construction, 4. The interrelated design and construction of roll stands and cap bars.

But these represent something more than mechanical improvements: **as a result of the effective Fibre Control during this important drafting process — yarn quality is improved, performance is better, and costs are reduced** . . . Please write for bulletin.

**SACO-LOWELL SHOPS** 60 BATTERYMARCH STREET · · BOSTON · · MASS.

CHARLOTTE, N. C. GREENVILLE, S. C. ATLANTA, GA.

• DU PONT Formic and Acetic Acids meet every textile requirement for acid dyeing.

DU PONT Formic Acid is the strongest *Safe* acid for union dyeing. It improves fastness and lessens crocking. It is also efficient for developing proper shades in print goods and is a good neutralizer for sulfur dyes.

DU PONT Acetic Acid is the standard for chrome acetic oxidation of vat colors. It is also the ideal discharge agent for sensitive dyes and pastel shades. Synthesized by our own process DU PONT Acetic Acid is of high purity, low in non volatile matter.

For high quality, economical dyeing specify DU PONT Acids.

**DU PONT**
**TEXTILE CHEMICALS**

Acetic Acid
Aluminum Sulfate
Anhydrous Sodium Sulfate
Bichromate of Soda
Caustic Soda
Formic Acid
Glauber's Salt
Lactic Acid
Muriatic Acid
Silicate of Soda
Sodium Hyposulfite
Sodium Phosphate
Sodium Sulfate
Sodium Sulfide
Sulfuric Acid
Tri Sodium Phosphate

**E. I. DU PONT DE NEMOURS & CO., INC.**
**GRASSELLI CHEMICALS DEPARTMENT**
**WILMINGTON, DELAWARE**

DU PONT
REG. U. S. PAT. OFF.

# GETTING THE MOST FROM WINDING

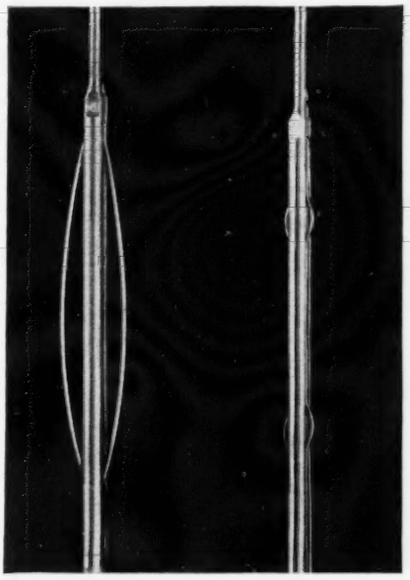
Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

## IMPROVED COP HOLDER SPRING

*"Best by Test"*

**(No. 90 Leesona Winder)**

For many years efforts have been made to improve the material and design of cop holder springs. The time required for testing under mill conditions would be altogether too long, so we developed the "torture machine" shown at right.

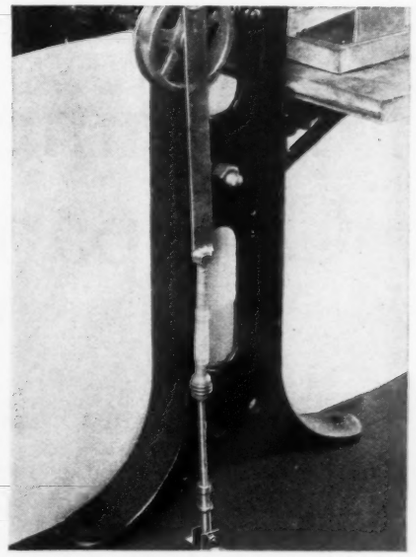


THE OLD THE NEW

This machine has been testing for months several types of specially-tempered music wire, some imported from abroad. We have finally found one wire whose performance on the torture machine assures us that it has a much longer life than any wire we have ever tested.

We have also gone one step further and have discovered — after many experiments — a shape of spring much more satisfactory than the long open design used in the past. Again, the torture machine has proved this shape "best by test."

These conclusions have been strengthened by results in actual mill operation, and we have adopted this new wire and design as standard equipment—to be sent on replacement orders and on new machines.



*Torture machine automatically slides the bobbin on and off the spindle to test life of one spring with another.*

## YARN TAKEUP SPEED (No. 50 Winder)

*How to figure it.* The average yarn takeup speed on the No. 50 Winder can be estimated by using this formula:

$$\frac{\text{Ave. Diam.} \times 3.14 \times \text{Spindle R.P.M.}}{36 \text{ Inches}} = \text{Y. P. M.}$$

The average diameter of a parallel tube is determined by adding the diameter at the start of winding to the diameter of the finished package, and dividing by 2. The average diameter of a cone is figured by adding the starting diameter on the nose end of the traverse to the base diameter of the full cone, and dividing by 2.

For example, when winding a 4" package on a $1\frac{1}{4}$" tube at 1000 r.p.m., the average winding speed will be:

$$\frac{\text{(Ave. Diam.)} \quad \text{(R.P.M.)}}{\frac{2.625'' \times 3.14 \times 1000}{36''}} = 229 \text{ Yards per Minute}$$

The above method is simplest for practical use, but it is not absolutely accurate, because an allowance should be made for the length of traverse and number of winds which will give a higher actual yarn takeup speed.

The following formula for determining corrected yarn takeup speed will be helpful to those mills that are operating many precision winding spindles.

(T stands for Traverse, W for Winds)

$$\frac{\text{R. P. M.}}{36'' \times W} \times \sqrt{(T)^2 + (W \times \text{Ave. Diam.} \times 3.14)^2}$$

*Example:* winding a package to 4 inches in diameter on a tube $1\frac{1}{4}$" in diameter, 1000 r.p.m., 6" traverse, 2.5 winds.

$$\frac{1000}{36'' \times 2.5} \times \sqrt{(6'')^2 + (2.5 \times 2.625'' \times 3.14)^2}$$

$$11.11 \times \sqrt{36 + 425} = 11.11 \times 21.47 =$$

Corrected Yarn Takeup Speed 238.6 Y.P.M.

To change any of the figures in the table below to other spindle speeds:

$$\frac{\text{Y.P.M.} \times \text{R.P.M.}}{1000 \text{ R.P.M.}} = \text{Y.P.M. for other speed}$$

$$\frac{238.6 \times 1200}{1000} = 286 \text{ Yards per Minute (for 1200 R.P.M.)}$$

AVERAGE YARN TAKEUP SPEEDS

Spindle Speed: 1000 R.P.M. Corrected for 6" Traverse and $2\frac{1}{2}$ Winds

| TYPE OF WINDING | $\frac{5}{8}$" Tubing | 5°57′ Coning 9°15′ Nutaper Coning | 1" Tubing | 3°30′ Coning | Franklin Spring |
|---|---|---|---|---|---|
| Diameter of Full Tube or Base Diameter of Full Cone | Outside Starting Diameter $\frac{27}{32}$" | Starting Diameter at Nose End of Traverse $\frac{27}{32}$" | Outside Starting Diameter $1\frac{1}{4}$" | Starting Diameter at Nose End of Traverse $1\frac{1}{4}$" | Outside Diameter of Spring and Stocking $1\frac{3}{4}$" |
| $6\frac{1}{4}$ | 317 | | 334 | | 359 |
| 6 | 306 | | 323 | | 348 |
| $5\frac{3}{4}$ | 295 | | 313 | | 336 |
| $5\frac{1}{2}$ | 285 | | 302 | | 325 |
| $5\frac{1}{4}$ | 274 | | 292 | | 314 |
| 5 | 264 | | 282 | | 302 |
| $4\frac{3}{4}$ | 253 | | 271 | | 291 |
| $4\frac{1}{2}$ | 242 | | 261 | | 281 |
| $4\frac{1}{4}$ | 232 | | 250 | | 270 |
| 4 | 221 | | 239 | | 260 |
| $3\frac{3}{4}$ | 211 | | 229 | | 249 |
| $3\frac{1}{2}$ | 200 | | 219 | | 239 |
| $3\frac{1}{4}$ | 190 | | 209 | | 228 |
| 3 | 180 | | 198 | | 218 |

UNIVERSAL WINDING COMPANY

PROVIDENCE BOSTON PHILADELPHIA UTICA CHARLOTTE ATLANTA

1528

# L. F. Dommerich & Company

*Executive and General Offices*

271 MADISON AVENUE
NEW YORK, N. Y.

**Telephone: AShland 4-8650**

# FACTORS

For Manufacturers and Merchants

*Inquiries as to our services solicited*

●

ESTABLISHED 1840

# FINISH WITH A PROFIT..

## *Use Laurel Textile Finishes*

**SILK** — *SOAKING — DEGUMMING — FINISHING*

**COTTON** — *BLEACHING — DYEING — FINISHING*

**WOOL** — *LUBRICATING — SCOURING — FULLING*

**RAYON** — *SIZING — OILING — SCOURING — DYEING — FINISHING*

**FOR** nearly three decades manufacturers and processors of silk, cotton, wool and rayon yarns and fabrics have been using Laurel Textile Finishes to assure profitable end-results. The uniform quality of Laurel Products has a definite bearing on profitable finishing . . . they give smoother, softer, quicker knitting and weaving yarns.

If your profits are too close to borderline, explore for yourself the amazing possibilities of the Laurel laboratory-controlled Textile Finishes . . . there is one for every textile process and we will gladly work out with you the best application for your finishing problem.

*Laurel*

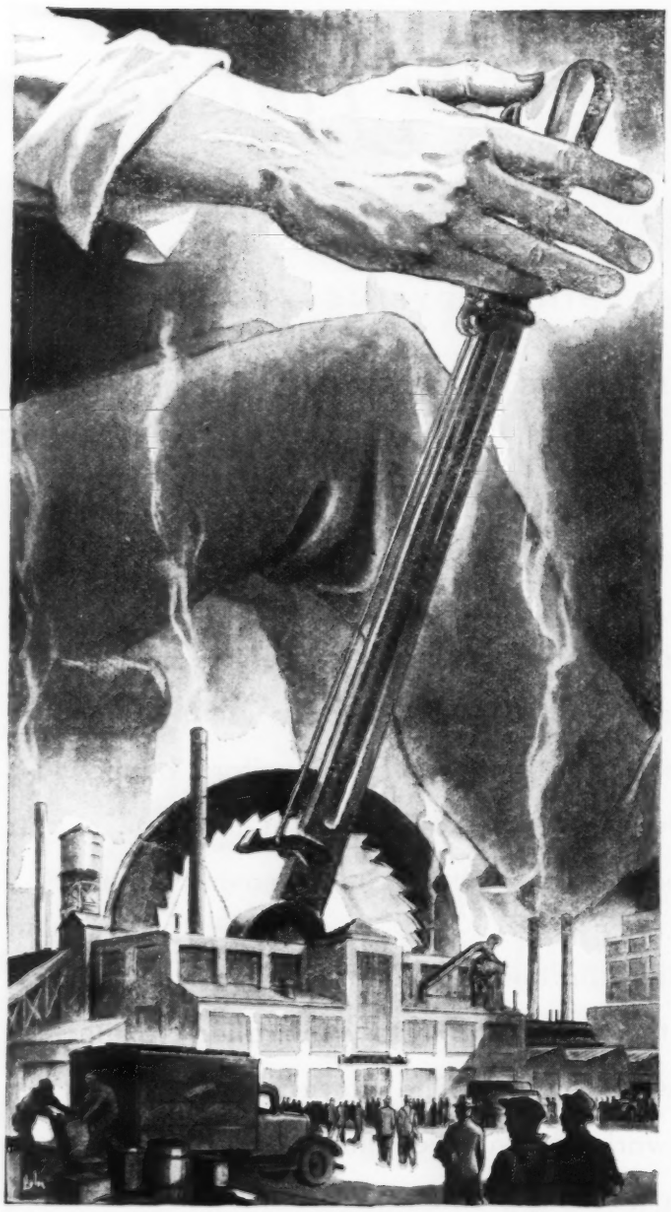
**SOAP MANUFACTURING COMPANY, Inc.**

Wm. H. Bertolet's Sons — *Established 1909*

**2600 East Tioga Street Philadelphia, Pa.**

*Warehouses:* Paterson, N. J. Chattanooga, Tenn. Charlotte, N. C.

# CONTROLLED COLLECTIONS
## TAKE THE BRAKES OFF YOUR BUSINESS



**Selling open accounts, with Limited Loss protection, eliminates financing drawbacks.**

ANY business may get snagged by temporary lack of cash. But most manufacturers and wholesalers have idle assets they can utilize at a day's notice, to pull them through the tight spots easily, safely and without recourse to costly, slow-acting refinancing or borrowing.

Your accounts receivable are as good as gold. To realize on them, you need not bind yourself to a set program, nor to periodic liquidation. You can sell part or all of them, depending on your immediate needs. The cost is generally less than the discounts you would allow.

Another advantage. You can convert them into cash now with comfortable assurance against any bad-credit backfire. Our *Limited Loss* clause, holds your credit risk down to an agreed, small percentage.

Arm your business with cash to discount your bills, to meet payrolls and tax payments, to broaden your markets, to speed up liquidation of inventory. Be able to draw on this cash reserve without affecting your customers' terms --without even notifying your customers.

There is no easier, more flexible way to finance your business. It's the solution to today's financing problems.

**COMMERCIAL CREDIT COMPANY**

Capital and Surplus Over $64,000,000

*BALTIMORE*

NEW YORK CHICAGO PORTLAND, ORE. SAN FRANCISCO

**CAPITAL AT WORK**

Read our new booklet for first-hand facts about this convenient modern method of financing. On request a copy will be mailed, or a representative from our office in your district will be glad to call at your convenience.

# *Quality Standards*

## Developed Here... help plant managers cut operating costs... boost profits

Millions of dollars have been invested in fine precision machinery by American industry in the past few years! Highly specialized new machines turn out precision work with remarkable speed and accuracy . . . a tribute to the ingenuity of their designers—but a challenge to the manufacturer of lubricants.

For these modern machines demand better lubrication. Highly-finished gears and close-fitting bearings must operate day in and day out without appreciable wear. A "good oil" of yesterday may not meet today's needs. Quality standards for oils and greases must constantly rise.

Each day in the Gulf research laboratories a versatile group of highly-skilled technical men works to perfect better lubricants—to raise the quality standards for oils and greases. Their unceasing efforts bring real benefits to users of Gulf quality lubricants—in lessened wear, repair and maintenance expense for the machinery in their care. Let a Gulf engineer suggest ways of effecting economies in the operation of *your* equipment through the proper use of Gulf's higher quality oils and greases.

GULF INDUSTRIAL LUBRICATION

A COMPLETE LINE OF 553 QUALITY LUBRICANTS FOR INDUSTRY

# No matter how good a picker lap *seems* to be; test the card sliver to find out how good it *is*.

**The new Aldrich Synchronizers have consistently made laps producing evener card sliver on every comparative test that has been reported to us. Evener card sliver naturally makes evener roving and yarn.**

**Long draft carding and spinning equipment demands even card sliver---**

# Aldrich Synchronized Single Process picking is the way to get it.

**AldricH MachinE**

Greenwood, **WorkS** South Carolina

# 26,598,634 Advertising Messages to Consumers in the First 3 Months of the 1938 Campaign on CROWN Tested Rayon Fabrics

The results are piling up! Day after day, month after month, more and more women are reading the message of CROWN RAYON FABRICS, of CROWN TESTED QUALITY, in their favorite magazines and leading newspapers.

Impelled by the powerful story of beauty that is fashion-right, quality that is check-tested and approved, women are asking for CROWN TESTED RAYON Fabrics and merchandise in their favorite stores and shops.

## FORWARD WITH CROWN RAYON

CROWN VISCOSE RAYON · CROWN ACETATE RAYON · CROWN RAYON STAPLE

**AMERICAN VISCOSE CORPORATION**

*World's Largest Producer of Rayon Yarn*

200 MADISON AVENUE, NEW YORK CITY

**PLANTS**

Marcus Hook, Pennsylvania
Roanoke, Virginia
Lewistown, Pennsylvania
Meadville, Pennsylvania
Parkersburg, West Virginia
Nitro, West Virginia
Front Royal, Virginia

**SALES OFFICES**

New York City
Providence, Rhode Island
Charlotte, North Carolina
Philadelphia, Pennsylvania

Copr. 1938—American Viscose Corporation

*Du Pont Dyes for*

# ACETATE FIBERS

CELLULOSE ACETATE RAYON occupies an important position in the world of fashion today. Its creation prompted the development of an entirely new group of dyestuffs particularly designed for application on this fiber.

The Du Pont range of dyes for acetate fibers comprises a wide variety from which consuming industries may make their selection. These are marketed under the names ACETAMINE*, ACETAMINE Diazo and CELANTHRENE.*

Individual products in the above groups possess different characteristics, but all meet the working and fastness specifications required by industry. Du Pont ACETAMINE and CELANTHRENE dyes are readily dispersible, exhaust satisfactorily, penetrate well and are level dyeing.

These dyes are recommended for application on all types of acetate fibers, taffetas, satins, knit goods, combination fiber crepes and alpaca cloths. Du Pont quality is consistently maintained throughout and the user may be assured of product uniformity.

*Reg. U. S. Pat. Off.

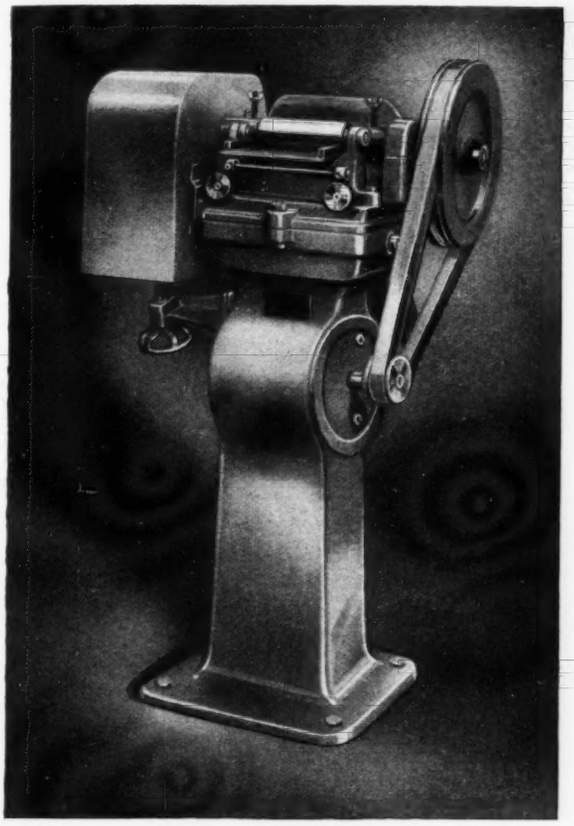
DU PONT DYESTUFFS
REG. U. S. PAT. OFF.

**E. I. DU PONT DE NEMOURS & COMPANY, INC.**

*Organic Chemicals Department, Dyestuffs Division*

**WILMINGTON, DELAWARE, U. S. A.**

# STOKES-BUTTERWORTH



*Front View Showing Feeding Rolls*

## *Staple Fibre Cutter*

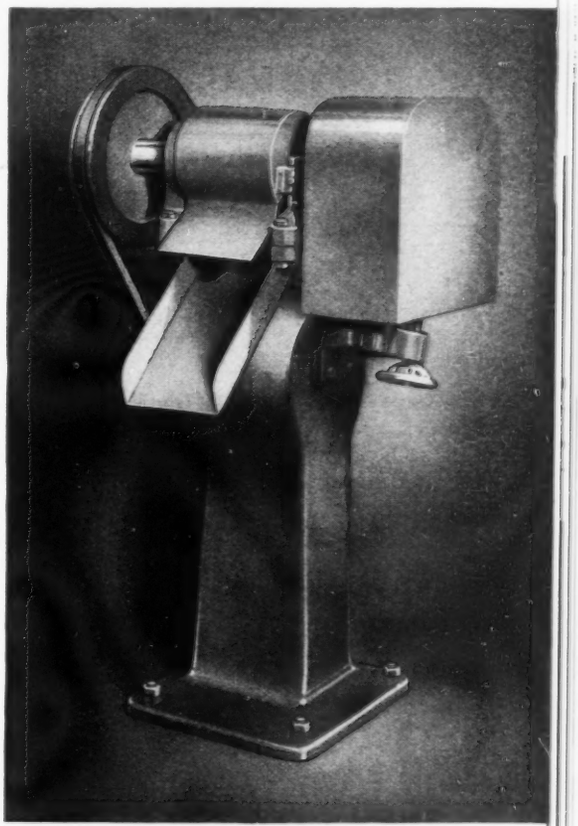
**THIS machine cuts wool, silk, flax, rayon and other materials which are in the form of top, sliver, skein or other continuous lengths, into lengths of natural cotton fibre, so that they may be handled on cotton and wool spinning machinery, either in mixed spinning or alone.**

Cutting is done clean, in lengths from ¼ to 6 inches at up to 500 pounds per hour.

Material is self fed into machine at any desired speed and up to 6 strands at a time. Machine has variable speed control. Motor is fully enclosed. Entire machine occupies little floor space.

Complete details and literature will be sent promptly.

**See this machine in actual operation at the Knitting Arts Show, Phila., April 25 to 29. Spaces 64, 65 and 66.**



*Rear View Showing Delivery Chute*

**H. W. BUTTERWORTH & SONS CO., PHILADELPHIA, PA.**

*Established 1820*

PLANTS at PHILADELPHIA and BETHAYRES, PA.

New England Office: TURK'S HEAD BUILDING Providence, R. I.

Southern Office: JOHNSTON BUILDING Charlotte, N. C.

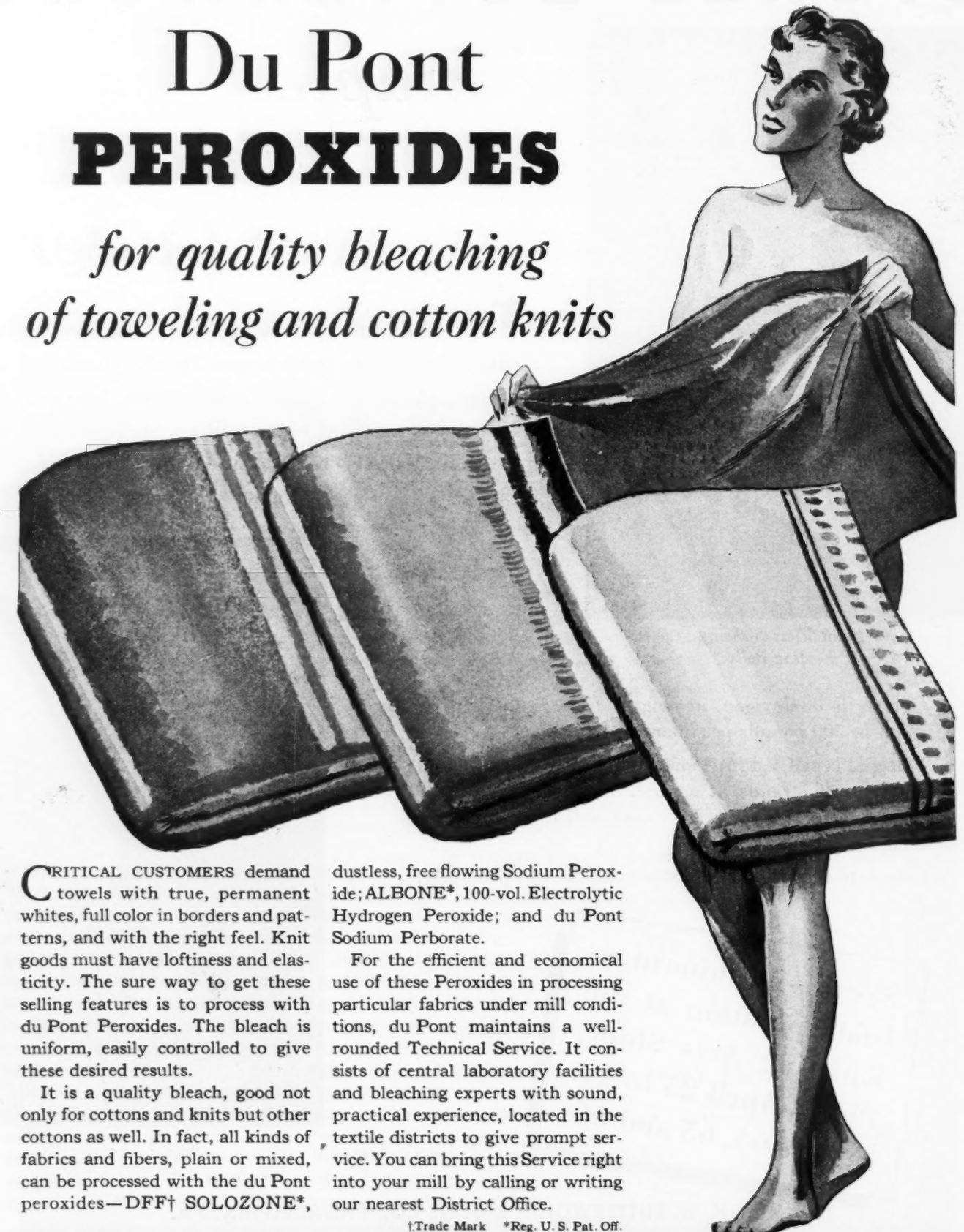
In Canada: W. J. WESTAWAY CO. Hamilton, Ontario

# BUTTERWORTH *finishing* MACHINERY

A COMPLETE LINE OF FINISHING AND RAYON MACHINERY FOR THE TEXTILE INDUSTRY

# Du Pont **PEROXIDES**

## *for quality bleaching of toweling and cotton knits*



CRITICAL CUSTOMERS demand towels with true, permanent whites, full color in borders and patterns, and with the right feel. Knit goods must have loftiness and elasticity. The sure way to get these selling features is to process with du Pont Peroxides. The bleach is uniform, easily controlled to give these desired results.

It is a quality bleach, good not only for cottons and knits but other cottons as well. In fact, all kinds of fabrics and fibers, plain or mixed, can be processed with the du Pont peroxides—DFF† SOLOZONE*, dustless, free flowing Sodium Peroxide; ALBONE*, 100-vol. Electrolytic Hydrogen Peroxide; and du Pont Sodium Perborate.

For the efficient and economical use of these Peroxides in processing particular fabrics under mill conditions, du Pont maintains a well-rounded Technical Service. It consists of central laboratory facilities and bleaching experts with sound, practical experience, located in the textile districts to give prompt service. You can bring this Service right into your mill by calling or writing our nearest District Office.

†Trade Mark *Reg. U. S. Pat. Off.

DU PONT
REG. U. S. PAT. OFF.

The R. & H. Chemicals Department
E. I. DU PONT DE NEMOURS & COMPANY, INC.
Wilmington, Delaware

*District Sales Offices:* Baltimore, Boston, Charlotte, Chicago, Cleveland, Kansas City, Newark, New York, Philadelphia, Pittsburgh, San Francisco

# DESIGNED AND BUILT DISTINCTLY FOR THE TEXTILE INDUSTRY!

Allis-Chalmers Engineers made an exhaustive study of the motor needs of the Textile Industry and then designed and built a special motor—the Allis-Chalmers Quick Clean Motor—to meet every exacting detail of those needs.

The makeshift of merely adapting an ordinary, standard motor to textile usage was made obsolete by the advent of the Allis-Chalmers Quick-Clean Motor.

In this motor overheating is eliminated and maintenance costs are reduced to the minimum, because it actually and thoroughly cleans itself.

Three exclusive Allis-Chalmers features are responsible for this—(1) Big unrestricted air passages, (2) Glass-smooth inside surfaces to which dust and lint cannot adhere, (3) All working parts positively dust-sealed.

Available in four sizes: 5, 7½, 10 and 15 hp. Standard N. E. M. A. mounting dimensions.

*The Allis-Chalmers Mfg. Co. builds standard motors of every type from 1 hp. up—also motors for special application*

MOTOR DIVISION

ALLIS·CHALMERS

MILWAUKEE WISCONSIN

# "MUSCLING IN" on the job with U. S. ROYAL JR.

**SUPPLYING THE "MUSCLE" FOR HEAVY-DUTY PICKER OPERATION IS NO ASSIGNMENT FOR "LOAFERS"**

• The super-flexibility of U. S. Royal Jr. and its power to take high-speed punishment . . . its ability to stand heavy starting loads . . . crossed drives . . . frequent shifting . . . all combine to make a belt ideal for every type of textile drive—for pickers . . . cards . . . spinners . . . looms. U. S. Royal Jr. is remarkably responsive because it's made of close-woven, strong cotton duck—thoroughly impregnated with specially compounded live rubber. U. S. Royal Jr. is light . . . flexible . . . elastic. Mill superintendents everywhere report it gives Service Beyond Price and Specifications.

*Write* FOR YOUR FREE COPY of this new U. S. Transmission Belt Album. Contains photographic case histories of belt problems and applications. Shows "U. S." belts at work and in the making.

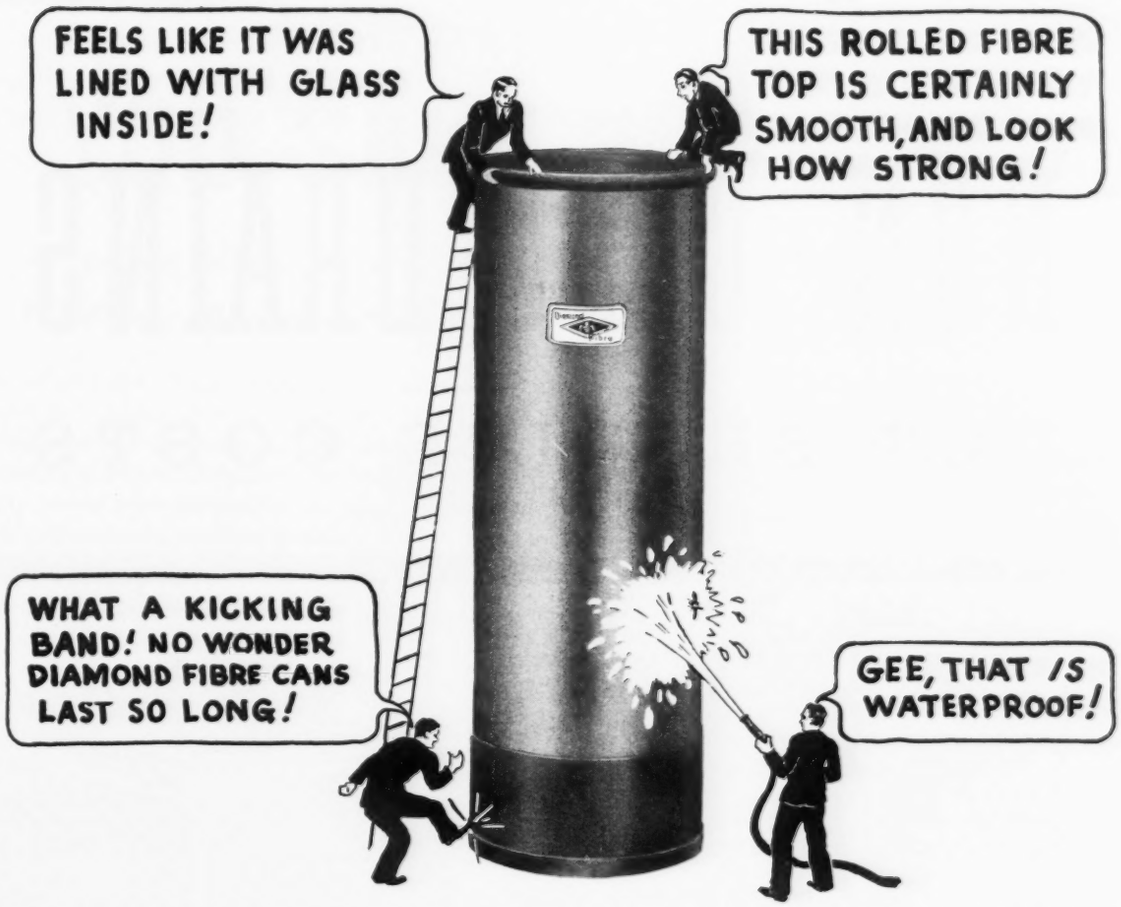
TUNE IN Columbia Broadcasting System, Wednesday Evenings, on the U. S. Rubber Royal Master Tire Program with an all-star cast.

UNITED STATES RUBBER COMPANY · US · TRADE MARK

**United States Rubber Company**

United States Rubber Products, Inc., N. Y.

# *Let's Look Into This!*


FEELS LIKE IT WAS LINED WITH GLASS INSIDE!
THIS ROLLED FIBRE TOP IS CERTAINLY SMOOTH, AND LOOK HOW STRONG!
WHAT A KICKING BAND! NO WONDER DIAMOND FIBRE CANS LAST SO LONG!
GEE, THAT IS WATERPROOF!

Put down your own specifications for the ideal roving can and see if they don't check point for point with features incorporated in *Diamond Fibre Seamless Roving cans.*

- √ Made from a seamless tube of light, tough, strong Diamond Fibre.
- √ Designed to eliminate top sway.
- √ All types of tops—Rolled Fibre—Turned Fibre or Metal—guarantee smooth entrance and exit of material.
- √ Inside finished glass-smooth with waterproof lacquer.
- √ Outside finished with waterproof varnish.
- √ Metal bottom, metal ring and kicking band riveted together to form exceptional sturdiness where most needed.
- √ Made in several diameters and lengths.

Your files should contain complete data on this and other Diamond Fibre Hollow Ware for the textile industry. *Clip and mail the coupon today.*

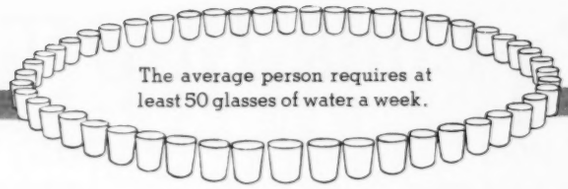
**DIAMOND FIBRE HOLLOW WARE**

TRUCKS-BOXES-CANS-BASKETS-TRAYS

CONTINENTAL-DIAMOND FIBRE COMPANY
Dept. "C", Newark, Del.

☐ Please send catalog. ☐ Have salesman call.

Name .....
Company .....
Address .....
City and State .....




# NON·CLOG DRAINS

## CUT SERVICE COSTS

Here is one of the greatest money-saving improvements ever built in a water cooler. The Westinghouse large, ¾ inch, "straightaway" drain pipe obsoletes all old-fashioned, coil drained coolers. It banishes forever the common and costly operation of continually cleaning out drains clogged with lint, waste, food particles, tobacco and other foreign matter. Non-clog drains slash service costs.

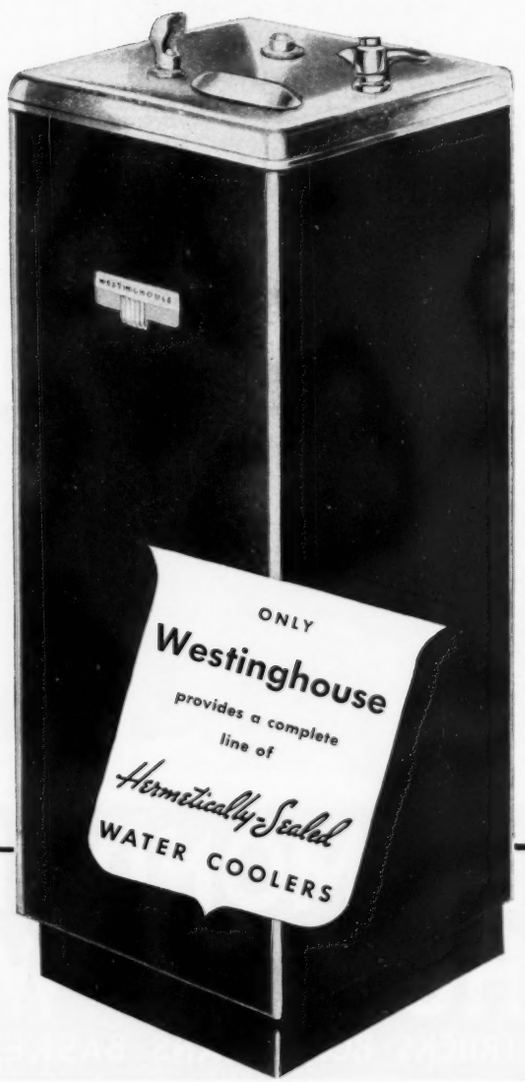
**Other Exclusive Features That Give EXTRA Value**

Stainless Steel Top . . . Special Capacity Booster . . . High Efficiency Cooling Chamber . . . Built-in Watchman Protection . . . Permanent Oil Supply . . . Burnout-Proof Motors . . . Hermetically-sealed Mechanism. No grit, dirt, rust or corrosion . . . the things that cause most machinery to wear out, can harm the Westinghouse mechanism because it is Hermetically-sealed inside an airtight case of solid steel.

Because it is Hermetically-sealed, Westinghouse provides a plan for five years protection on the sealed-in mechanism. This is based on the EXTRA years of trouble-free performance which experience shows you can confidently expect.

• • •

**FREE.** Ask your Westinghouse dealer for free copy of a useful folder—"How to Check Drinking Water Costs" or write—Westinghouse Electric & Manufacturing Company, Section 8210, Mansfield, Ohio.




**Westinghouse**

**WATER COOLERS**

HERMETICALLY-SEALED FOR EXTRA YEARS OF TROUBLE-FREE PERFORMANCE

Explosion-proof models available

DU PONT **MEASURE PAINT VALUE BY THE PERFORMANCE YARDSTICK** DU PONT

# *By spending dimes*
# YOU SAVE DOLLARS

***If you buy paints simply by Cost Per Gallon, you may save Dimes***
***When you buy paints by COST PER JOB, you save DOLLARS***

TODAY you don't have to pay a high price for a good mill white. But, on the other hand, it doesn't pay to buy the cheapest. What if you *do* save a few cents per gallon? If that mill white takes longer to apply, needs more gallons for the job, or requires frequent repaintings, you lose dollars.

The cost of labor, you know, far exceeds the cost of any mill white. Therefore, the mill white that does a good job *fastest,* with less paint, will cost you least.

Consider the mill white you buy by these important qualities—hiding, application time, spread rate, retention of whiteness—and you'll save money.

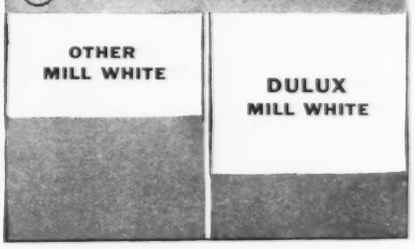
**1 HAS IT GOOD HIDING POWER?**

The amazing hiding power of DULUX Mill White means fewer coats needed, less paint for the job, shorter application time...which saves you dollars.

**2 DOES IT SAVE APPLICATION TIME?**

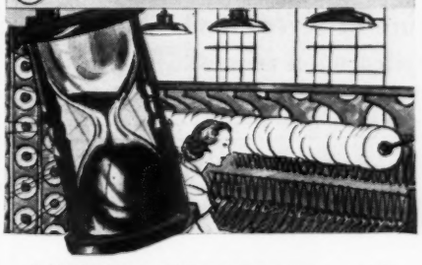
The easy working qualities of DULUX Mill White saves painters' time, and saves money for you. DULUX flows smoothly, evenly...and is self-leveling.

**3 HOW FAR DOES IT SPREAD?**



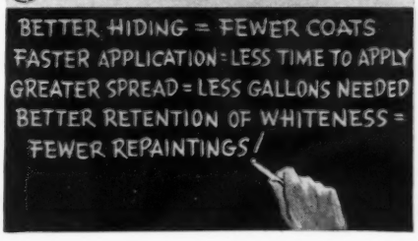

Tests in actual mills prove that DULUX spreads farther per gallon. Less gallonage required, more money saved for your company.

**4 DOES IT STAY WHITE?**



DULUX is *whiter* at the start...and it *stays* whiter *longer*. Your workers get maximum light reflection, and you don't have to repaint so often.

**5 DOES IT SAVE MONEY?**


BETTER HIDING = FEWER COATS
FASTER APPLICATION = LESS TIME TO APPLY
GREATER SPREAD = LESS GALLONS NEEDED
BETTER RETENTION OF WHITENESS = FEWER REPAINTINGS!

DULUX offers you lowest costs. It not only saves money in application, but it keeps paint overhead down to the lowest possible point.

*DULUX Mill White has the* Right *balance of these important qualities to give you* lowest *application cost and longest time between repaintings.*

---

If you don't know about DULUX, your paint overhead may be higher than necessary. Ask a Du Pont maintenance engineer to call and give you complete information about this *whiter* mill white that saves money and does a better job.

DU PONT
**DULUX MILL WHITE**
REG. U.S. PAT. OFF.
**STARTS WHITER · STAYS WHITER**

E. I. du Pont de Nemours & Co., Inc., Dept. C-48
Finishes Division, Wilmington, Delaware
Please see that I get full information about DULUX Mill White.

*Name*.....

*Firm Name*.....

*Address*.....

*City*.....*State*.....

*Spinners Listen To Others . . . .*
*But Continue To Use . . . .*

# The Universal Standard Ring Travelers

The Bowen Special Temper
Narrow Round Point
Square Point
Flat, Oval and Round Wire
The Bowen Vertical Steel
The Bowen Vertical Bronze
The Bowen Patented Bevel Edge
The Bowen Patented Vertical Offset
The Bowen Patented Ne-Bow Vertical

*For Spinning and Twisting*

IF YOU REQUIRE . . . . .

1. *Uniformity*
2. *Uninterrupted and Dependable Performance*
3. *Longer Life*
4. *Quality Product*

**First Quality Cotton, Wool, Worsted, Silk and Rayon Yarns are produced only by using ring travelers that dispel any doubt as to their performance and manufacture . . . . . UNIVERSAL STANDARD RING TRAVELERS . . . . . meet these requirements, and more, effect a gratifying saving in ring traveler costs by the extra measure of service and life they assure . . . . . Order them now . . . . . Samples mailed upon request.**

## U. S. Ring Traveler Company

PROVIDENCE, R. I. GREENVILLE, S. C.

AMOS M. BOWEN
President and Treasurer

*SOUTHERN SALES REPRESENTATIVES*

William P. Vaughan
P. O. Box 792
Greenville, S. C.

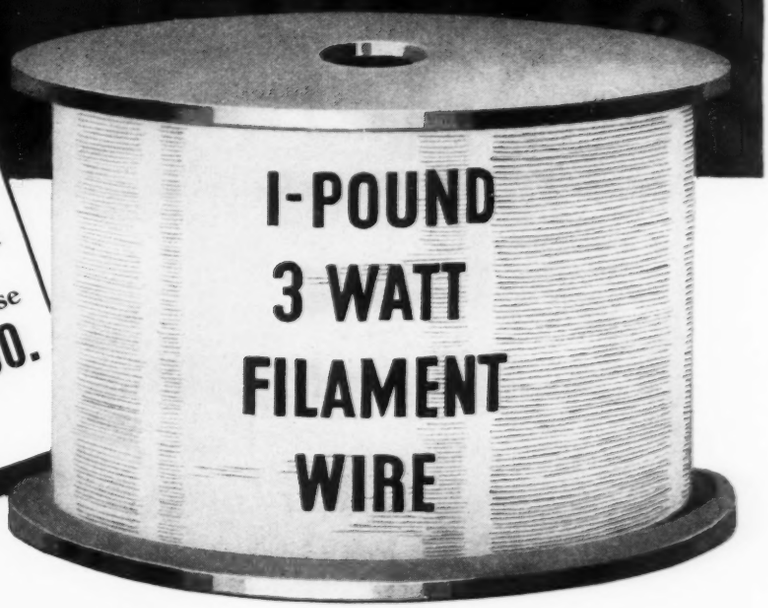
Oliver B. Land
P. O. Box 158,
Athens, Georgia

Torrence L. Maynard
P. O. Box 456
Belmont, N. C.

''A TRAVELER FOR EVERY FIBRE''

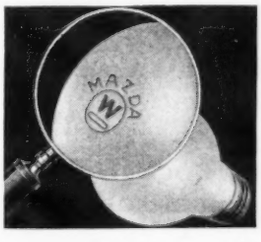
# WORTH 35 TIMES ITS WEIGHT IN GOLD!

A pound of gold is worth $560.
A pound of the tungsten filament wire used in small Westinghouse Mazda Lamps is worth $20,000.




## *An example of Westinghouse Mazda Lamp Quality—to give you* MORE LIGHT—LONGER

Metallic tungsten in powder form is worth less than $1.00 a pound. Converting it into finest filament wire increases its value to $20,000 a pound. With less exacting care it could be made for less—but because the filament is the heart of every lamp, Westinghouse spares no expense to make sure that the filament is perfect — so that you can get full lighting value out of every Westinghouse Mazda Lamp you buy.




*Over 480 tests and inspections of materials and processes go into the making of every Westinghouse Mazda Lamp. If any one of these tests or inspections were omitted, the quality of the lamp might be impaired. When you see the Westinghouse trade-mark on a Mazda Lamp, you know that it is the best lamp science and engineering skill can make.*

**HOW TO JUDGE A LAMP**

Lamps differ in quality. Inefficient lamps waste current and increase the cost of light. Our free booklet, *"How to Judge a Lamp,"* tells the important points to consider when buying lamps. Send for it today. Westinghouse Lamp Div., Westinghouse Elec. & Mfg. Co., 150 Broadway, New York, N. Y.

**Westinghouse makes no compromise with quality**

Westinghouse MAZDA LAMPS

# Burroughs
# FANFOLD MACHINE

**A DISTINCT ADVANCE IN FANFOLD**

## It Does More— AUTOMATICALLY!

**Carbons Shift Automatically**

•

**Carriage Opens Automatically**

•

**Completed Forms are Released Automatically**

•

**New Forms Lock Into Place Automatically**

•

**Carriage Closes Automatically**

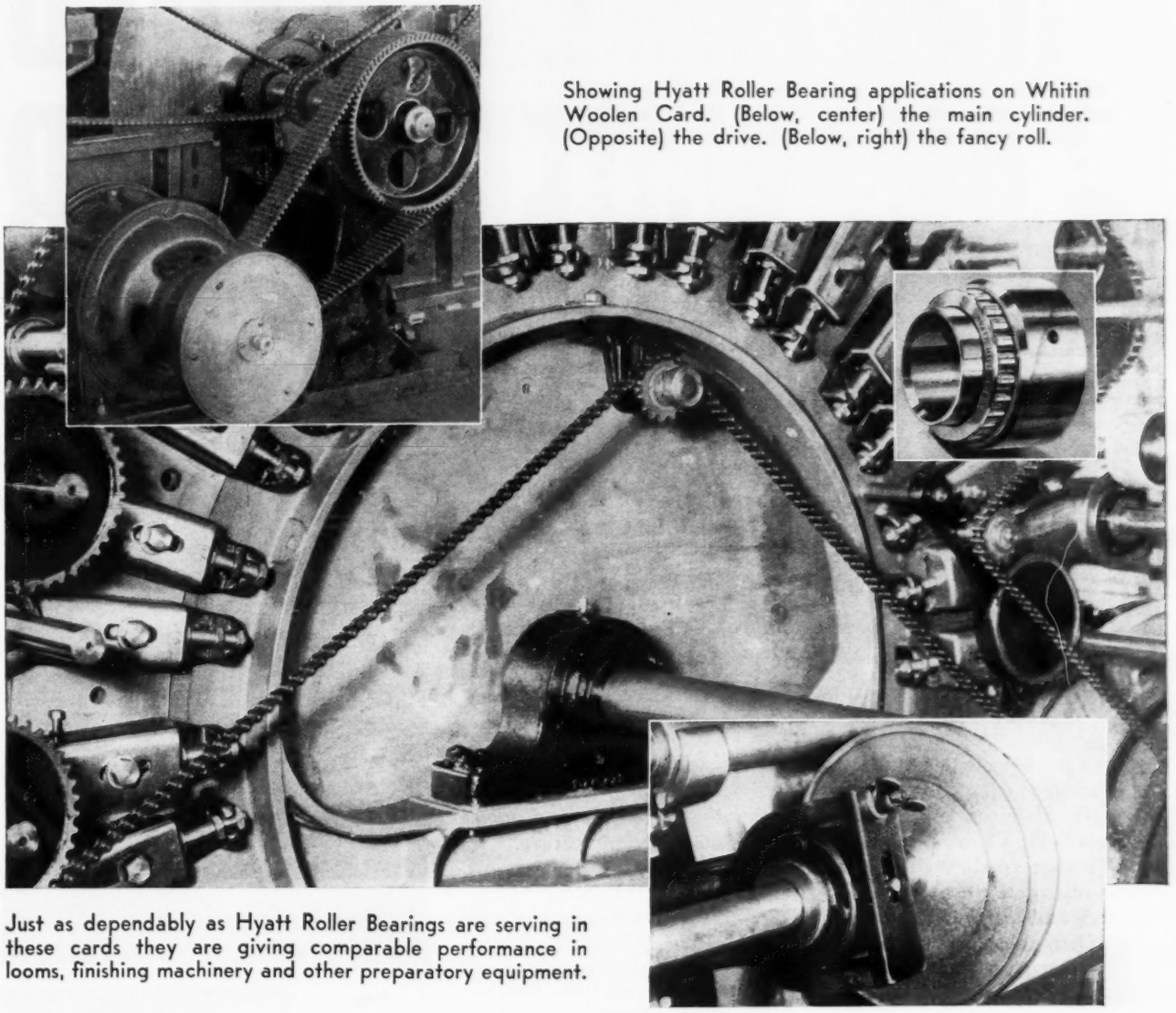
•

**Reverse tabulation, carriage return and spacing-up are controlled electrically by one key!**

SEE FOR YOURSELF—Ask for a demonstration on your own work. Compare it, feature by feature, with any fanfold machine that you have ever seen.

**BURROUGHS ADDING MACHINE COMPANY · DETROIT, MICHIGAN**

# PUTTING PRECISION INTO CARDS



Showing Hyatt Roller Bearing applications on Whitin Woolen Card. (Below, center) the main cylinder. (Opposite) the drive. (Below, right) the fancy roll.

Just as dependably as Hyatt Roller Bearings are serving in these cards they are giving comparable performance in looms, finishing machinery and other preparatory equipment.

For seven years Whitin Machine Works have been using Hyatt Roller Bearings as standard equipment on the main cylinders, fancy rolls, and drives of their woolen cards. Not one bearing has failed or been replaced. Whitin wanted bearings that would accurately maintain card settings. They wanted to eliminate bearing wear and overcome the lubrication problem. They wanted to eliminate the need of constant adjustment. The use of Hyatt Roller Bearings has solved these card bearing problems for them in a modern, logical and economical way.

The card, a precision machine, can't really be one unless its operating parts rotate in precision bearings. Specify Hyatts and be sure. Hyatt Bearings Division, General Motors Corporation, Harrison, N. J.

**HYATT** *Roller Bearings*

# FIRST TIME OFFERED IN ANY WATER COOLER

## NEW GENERAL ELECTRIC STAINLESS STEEL WATER RESERVOIR

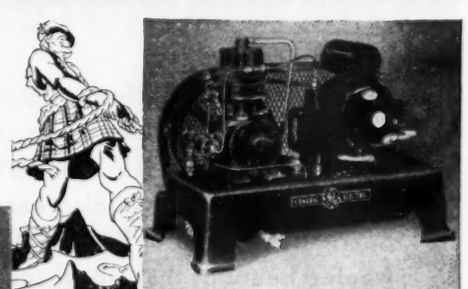
**Ends Rust, Leaks, Corrosion . . . No Water Cooler 100% Modern Without It!**

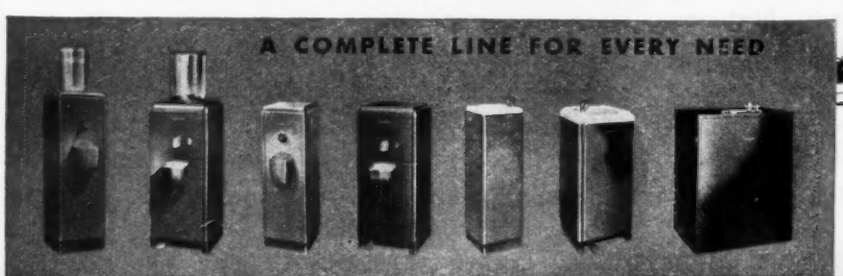
● Here's the greatest advance in water coolers in 10 years—the new G-E Stainless Steel Water Reservoir! First time offered in ANY water cooler, this new development of the famed G-E Research and Engineering Laboratories provides positive protection against rust, corrosion and leaks—three factors that have long been a problem in ordinary water cooler construction.

It is now possible to obtain pure, clear, unadulterated drinking water during the entire life of the water coolers you buy. Every model in the new 1938 line of General Electric Water Coolers has this important feature.

### GET THE BIG NEW G-E CATALOG

Shows new, low priced G-E models—special models with lint-proof, dust-proof mechanism for textile mills—heavy duty models for industrial use—storage tank type coolers and circulating drinking water systems—etc. Ask your G-E dealer for 1938 Catalog or write *today* to General Electric Co., Commercial Refrigeration Section TC4, Nela Park, Cleveland, O.






THR-R-IFTY POWER BY THE
**G-E SCOTCH GIANT**
REFRIGERATING UNITS

**GENERAL ELECTRIC**
COMMERCIAL REFRIGERATION

# A NEW LIGHT— ON FACTORY MAINTENANCE

OPEN up your employees' eyes! Spread helpful, efficiency-increasing illumination throughout your plant with Pittsburgh Glorified Light Paints. And working conditions will be greatly improved —accidents cut down—production and profits increased.

After long intensive research with eminent authorities on light control, Pittsburgh engineers have perfected three Glorified Light Systems. These finishes, scientifically designed to fit any type of factory lighting, correctly diffuse and control all available raw light—whether from natural or artificial sources. Turn every foot candle power into profitable illumination.

***Send for "Glorified Light" Book***

All the interesting, valuable facts are contained in Pittsburgh's "Glorified Light" Book. Send for your free copy now. See how quickly and easily you can paint proper lighting into your plant. Clip coupon below. Pittsburgh Plate Glass Company, Paint Division, Pittsburgh, Pennsylvania.

**THERE IS A GLORIFIED LIGHT PRODUCT FOR EVERY TYPE OF FACTORY!**

**THE SNOLITE SYSTEM** will bring profitable Glorified Light into any plant with normal interior surfaces.

**THE SNOTEX SYSTEM** is specially designed for all abnormal interior surfaces except those affected by fungus growth. It resists discoloration from humidity, fumes, gases and lack of daylight.

**THE FUNGUSIDE SYSTEM** effectually retards the growth of fungus. It is vitally necessary in bakeries and food factories —wherever fungus presents a serious problem.

Copr. 1938 Pittsburgh Plate Glass Co.

**PITTSBURGH PAINTS**
*Smooth as Glass*

**COMPLETE LINE OF STRUCTURAL MAINTENANCE FINISHES**

**SEND FOR THIS BOOK TODAY**

Pittsburgh Plate Glass Company
Paint Division, Dept. C4,
Pittsburgh, Pennsylvania

Please send me free your book, "Glorified Light".

Name_____

Address_____

City_____ State_____

# BELIEVE it or not!

*WITH APOLOGIES TO RIPLEY*

**Some replacement parts take the efficiency out of the most modern textile machines.**

A part that fits imperfectly, wears quickly or that breaks easily under the strain of high speed, won't let the most modern machine perform at its best.

Today's modernization of textile mill machinery is as much a matter of PARTS as of machine. The most modern machine MUST have strong, accurate parts. On the other hand, the oldest, out-of-date machine will operate more smoothly and efficiently if you put modern, close fitting, efficient **parts** in it.

In selecting your replacement parts demand those that are made by textile men who have studied the weak points of present day parts and have made parts that are stronger at these points—demand parts that are made from precision patterns to fit accurately the machine for which they are intended — demand parts that do not wear easily and that stand up under day-in-and-day-out strenuous speed.

Henderson Textile Repair Parts are these kind of parts and we'd like to prove it to you. May we?

HENDERSON FOUNDRY & MACHINE WORKS
HAMPTON GEORGIA

# FOR BETTER PROCESSING FROM FIBRE TO FINISHED FABRIC

NOPCO

"EVOLVED THRU RESEARCH"

## *COTTON YARNS*

For the dyeing and finishing of cotton yarns Nopco 1932-ALT has become a standard in many mills. It embodies features that are essential in meeting today's demands for the production of soft, even dyed yarns. Nopco 1932-ALT disperses dyestuff and acts as a penetrating agent. As a finish it imparts the softness which insures uniform knitting. Adapted to package dyeing. Additional information on request.

# NATIONAL OIL PRODUCTS CO.

HARRISON, N.J.

BOSTON - CHICAGO - CEDARTOWN, GA. - SAN FRANCISCO

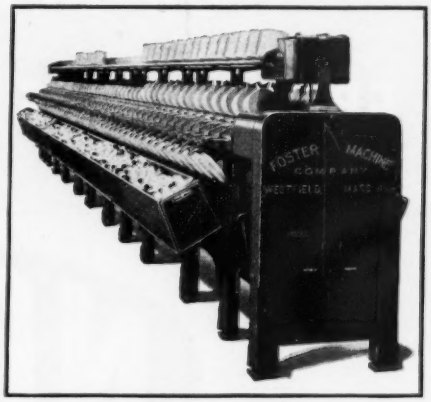
**YOUR REPUTATION ▲ ▲ ▲ WINDING MAKES IT OR BREAKS IT**

**FROM ALL ANGLES**

Foster cones are a sales asset because mills prefer them. Their UNIFORM DENSITY makes for uniform knitting and uniform warping. They are a manufacturing asset because they can be produced 100 per cent faster and at ⅓ less labor cost on the Model 102 than on older types of machines.

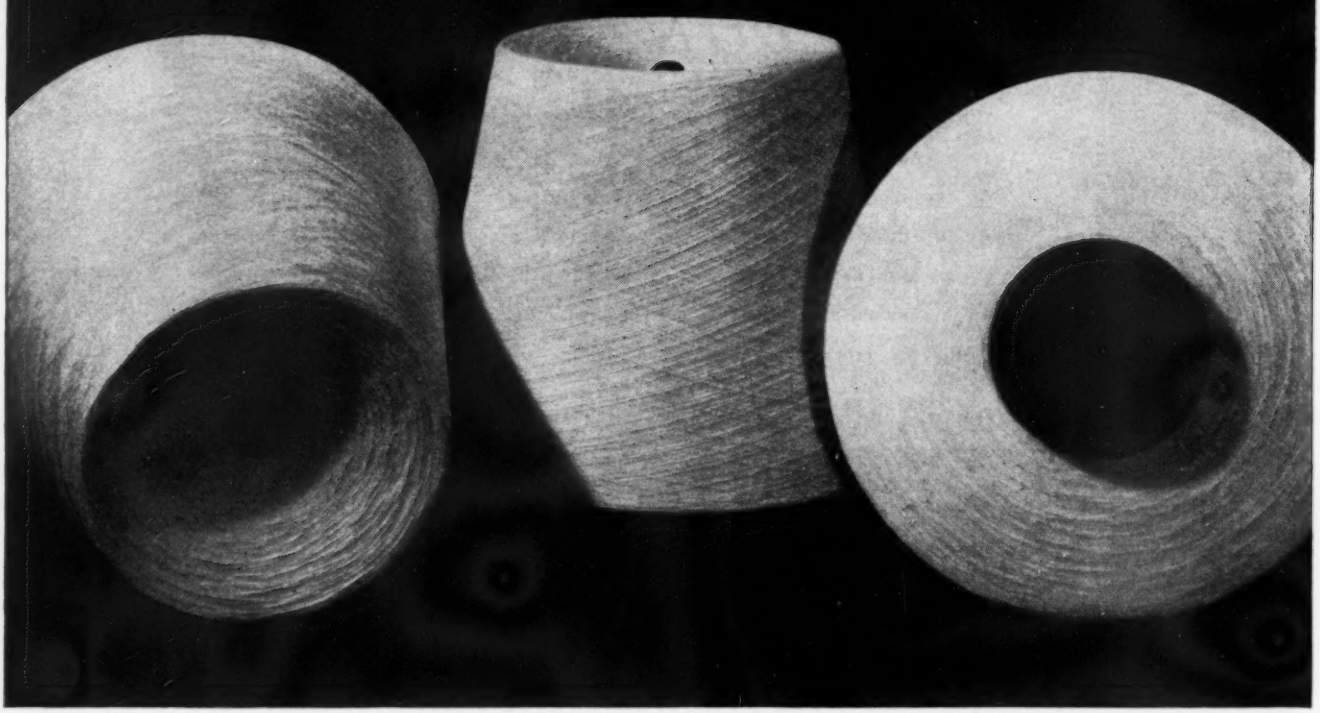
Let us explain in detail how the Foster Model 102 can help you.

FOSTER MACHINE COMPANY
Westfield, Mass.

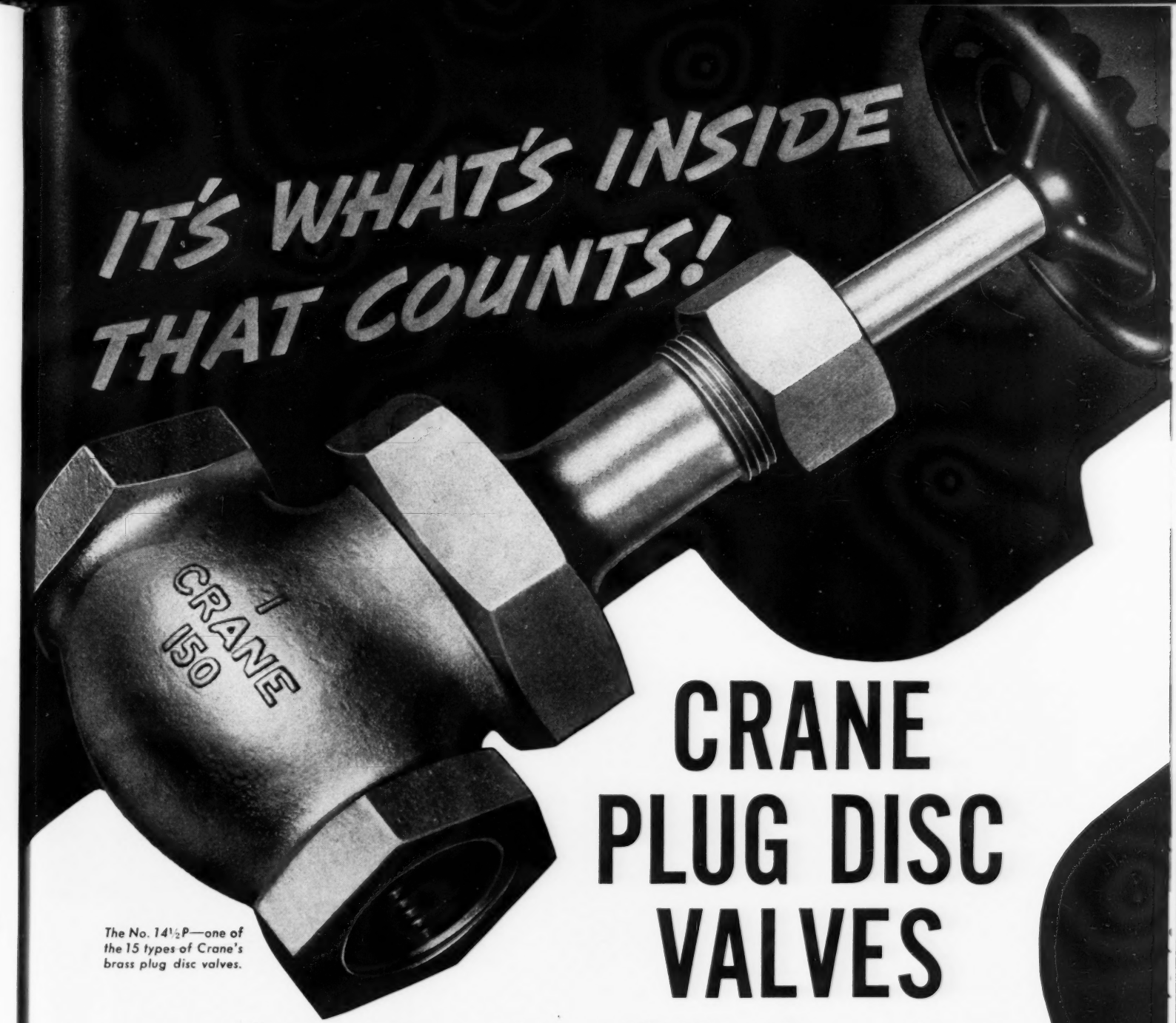



BE SURE TO VISIT US AT THE KNITTING ARTS SHOW, BOOTHS 346, 347 and 362

**FOSTER CONES ARE AN ASSET**



**FOSTER MODEL 102** ▶ **STANDARD FOR THE KNITTING TRADE**




*The No. 14½P—one of the 15 types of Crane's brass plug disc valves.*

# CRANE PLUG DISC VALVES

## For Textile Mill Service

Good to look at—but better to use—because quality in the Crane 14½P does not depend on superficial features. Its goodness is thorough. Backed by Crane experience and Crane engineering, the 14½P is built to do the kind of work that takes the life out of ordinary valves in short order. It's what's inside that counts most when a valve must operate in partly opened position, or when it is opened and closed often. That is why it will pay you to specify the Crane 14½P for throttling, for soot blower, blow-off, boiler feed, drip, and drain lines. Use the 14½P for services up to 150 lbs. S.W.P. at 450°F. Beyond that limit we recommend Nos. 212P and 382P. The details of design, materials, and construction that mean greater hidden values in Crane valves, are found in our booklet "The Inside Story of Crane Plug Type Disc Brass Valves." Get a copy. It's free. It tells a lot of vital facts about valve construction.

CRANE

VALVES • FITTINGS • PIPE
PLUMBING • HEATING • PUMPS

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE.
CHICAGO, ILLINOIS

NATION-WIDE SERVICE THROUGH 134 BRANCHES
AND MORE THAN 500 WHOLESALERS

# A Glowing Symbol of QUALITY and SERVICE

The Tuffer trade-mark definitely determines our responsibility for high quality card clothing. It is a pledge of quality to which textile men may look for economical and uniform production at all times.

Tuffer has been brought to its present perfection by 72 years of experience and craftsmanship, and precision equipment in a modern plant. Long ago Tuffer's better, more faithful performance became a national tradition. Records of Tuffer being in operation ten and even twenty years have become known. And favor for Tuffer has increased year after year until today 7 out of 10 textile mills use Tuffer. To maintain such records over a period of 72 years, Tuffer Card Clothing has to be improved constantly day by day.

**A typical example of Tuffer's long service is expressed by a customer who writes, "The other day I took off one of our Sheet Cylinders put on during 1916 and found each sheet stamped 'Howard Bros.' During this period it has been run practically day and night."**

## HOWARD BROS. MFG. CO.

HOME OFFICE AND FACTORY: WORCESTER, MASS.

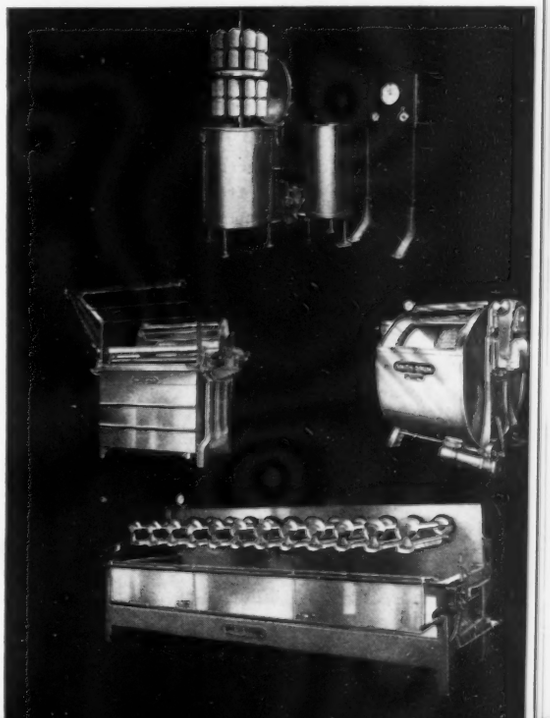
**Southern Plant:** 244 Forsythe St., Atlanta **Branch Offices:** Philadelphia, Dallas
**Canadian Agents:** Colwool Accessories, Ltd., Toronto 2, Canada

**Products:** Card Clothing for Woolen, Worsted, Cotton, Asbestos, and Silk Cards — Napper Clothing, Brush Clothing, Strickles, Emery Fillets, Top Flats Recovered and extra sets loaned at all plants — Lickerins and Garnett Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant — Midgley Patented Hand Stripping Cards, Howard's Special Hand Stripping Cards and Inserted-Eye and Regular Wire Heddles

# *FOR 50 YEARS SMITH-DRUM DYEING MACHINES HAVE PACED THE PROGRESS IN TEXTILES*

In 1938, this company completes its fiftieth year of service to the textile industry. Throughout these fifty years, Smith-Drum Machines have been universally recognized as the finest of their type. Most of the major improvements have been pioneered by Smith-Drum engineers. These have led to improved quality of dyeing and finishing and have paved the way to better materials, at lower cost. At the Knitting Arts Exhibition you will see the results of these 50 years of progress . . . the latest improvements in Smith-Drum Machines, and the two new machines on display. You are cordially invited to make the Smith-Drum Booth your headquarters.

Smith, Drum & Company, Philadelphia

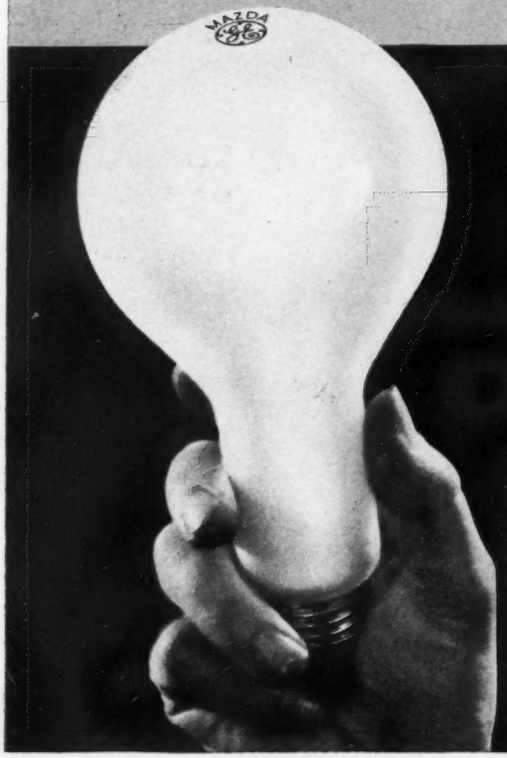


See The New SMITH-DRUM Machines
At The Knitting Arts Exhibition

GENERAL ELECTRIC ANNOUNCES

# *Brighter MAZDA lamps*

# NEW LOW PRICES



**SIGHT SAVING SIZES REDUCED AS MUCH AS 25%**

*The 19th Major Price Cut in 17 Years*
*Effective April 1st, 1938*

| SIZE | WAS | NOW |
|---|---|---|
| 75 WATT | ~~20¢~~ | 15¢ |
| 100 WATT | ~~20¢~~ | 15¢ |
| 150 WATT | ~~25¢~~ | 20¢ |
| 50-100-150 WATT | ~~50¢~~ | 45¢ |
| 100-200-300 WATT | ~~65¢~~ | 60¢ |
| 200 WATT | ~~35¢~~ | 30¢ |
| 300 WATT* | ~~60¢~~ | 50¢ |
| 500 WATT (Clear) | ~~$1.40~~ | $1.20 |
| **Clear, medium base.* | | |
| **Silvered Bowl Lamps** | | |
| 100 WATT | ~~60¢~~ | 55¢ |
| 150 WATT | ~~70¢~~ | 65¢ |
| 200 WATT | ~~95¢~~ | 85¢ |
| 300 WATT | ~~$1.45~~ | $1.35 |
| 500 WATT | ~~$2.25~~ | $2.05 |
| **Daylight Lamps** | | |
| 100 WATT* | ~~35¢~~ | 30¢ |
| 150 WATT | ~~50¢~~ | 45¢ |
| 200 WATT | ~~80¢~~ | 75¢ |
| 300 WATT | ~~$1.20~~ | $1.15 |
| 500 WATT | ~~$2.15~~ | $1.95 |
| **Inside frosted.* | | |

*Space does not permit the listing of all the types and sizes of lamps made by G-E. Many other lamps are also affected by this latest price reduction, including lamps for streets, highways, trains, locomotives, and street cars.*

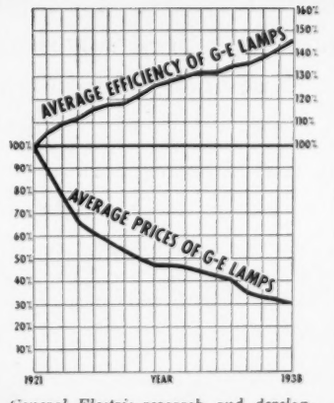
*"They stay brighter longer!"*

## *Better light for shops, offices, factories*

On April 1st General Electric announces a double saving for every shop, office, or factory that wants better light for better sight: *First*, new brighter MAZDA lamps that *stay brighter longer* and give more light than ever before. *Second*, General Electric's 19th major price reduction in 17 years. New low prices on sight-saving sizes used in the home, stores, offices, factories, schools, and transportation.

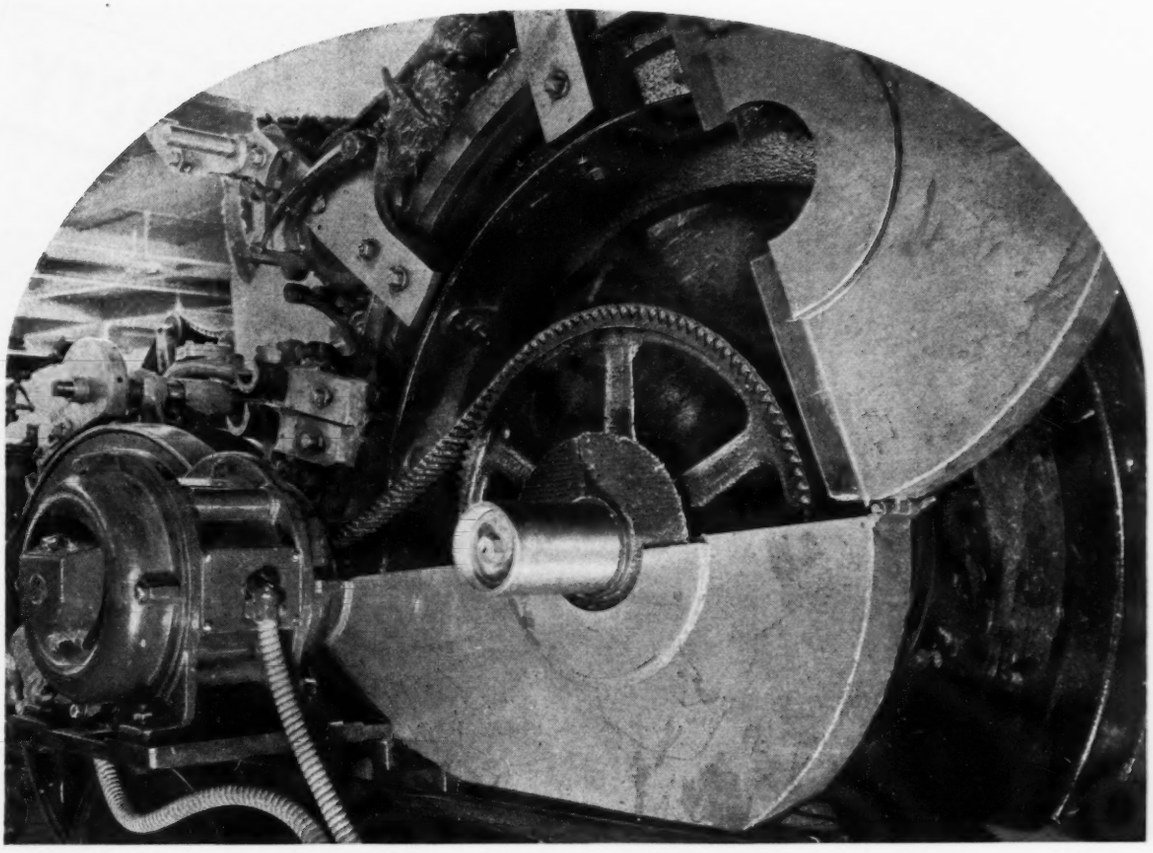
These new, brighter MAZDA lamps and new low prices offer you great advantages toward bringing lighting standards up to the modern requirements for efficient, safe seeing. They make your lighting costs lower than ever.

Because of this continued policy of offering better and better MAZDA lamps at lower and lower prices, it pays to insist that the lamps you buy carry the famous G-E monogram on every bulb. General Electric Company, Nela Park, Cleveland, Ohio.




*General Electric research and development are constantly at work to increase the light output of* MAZDA *lamps and to reduce prices. The above chart shows graphically what has been accomplished since 1921. Average bulb prices are down 70% . . . while average efficiency has climbed 46% in the same short time.*

GENERAL ELECTRIC



# YEARS OF UNFAILING SERVICE

● Working smoothly and quietly in their oil-retaining casings, many Link-Belt silent chain drives have been on the job continuously for one, two, even three decades.

Think what this means in terms of cost. Starting with a low first cost (frequently lower than belts), each additional year that a Link-Belt silent chain drive is in service brings down the overall cost until it is negligible. Usually, after it is written off the books—it still goes on delivering every R.P.M. of the motor (no-slip) in a smooth, steady "flow."

That's efficiency—qualities which assure steady top production with little time out for maintenance and repairs. The nearest Link-Belt Positive Drive Specialist can show you how this drive can be profitably applied in your plant.

Drives carried in stock—½ to 60 H.P.—by distributors throughout the country. Larger horse powers supplied from the factory on short notice. Send for engineering data book No. 125.

Link-Belt Company, Indianapolis, Chicago, Philadelphia, Atlanta, San Francisco, Toronto, or any of our offices located in principal cities.

**LINK-BELT *Silverstreak* SILENT CHAIN DRIVES**

# From Twine to 2-Thread Hosiery

# . . . "HIGH SEEABILITY" PAYS

Throughout the textile industry, from the manufacture of binder twine in the world's largest twine mill to the manufacture of the sheerest full-fashioned hosiery, the "high seeability" of modern Cooper Hewitt lighting is paying its way in actual dollars and cents.

*Seeing,* after all, is the first and all-important *control point* between men and the machines they operate—87% of the perceptions which guide a worker's performance are based on sight. Good seeing stimulates good workmanship and good feeling, increases productive efficiency, eliminates a source of alibis and accidents.

Make a check through industry today and you'll find that the plants that are most progressive, most alert to improved methods, and where true costs are known down to the last penny, have one thing in common: They are well lighted, with a lighting system engineered to the seeing tasks.

With the new Cooper Hewitt mercury vapor lamps, moreover, lighting engineered for high seeability is more practical and less expensive than ever before. Why not check up on its possibilities in your own plant? General Electric Vapor Lamp Company, 853 Adams Street, Hoboken, New Jersey.

The new Cooper Hewitt starts instantly . . . hangs horizontally . . . gives 22% more light on no more wattage. It provides a soft, detail-revealing light for non-fatiguing seeing. In the "Skylight" unit, mercury light is additively balanced by incandescent light to provide color-corrected synthetic daylight. Bulletin 521 gives complete details.

**GENERAL ELECTRIC VAPOR LAMP COMPANY**

885C

# WHY Johnson & Bassett, Inc. selected 3432 SKF bearings and hangers

## ATLANTA WOOLEN MILLS SAY:

*"On our new mules, we can get 28,000 pounds from 23 operators, each working 40 hrs. per week at 50c per hr. Thus we have been able to raise our operators' rate of pay better than 10%, and still show considerable savings, made possible when we found that operators could run 1½ mules without a great increase in effort. We expect further savings as operators become accustomed to this work assignment. Savings on warp winder, 64%; savings on winding our filling, 10%."*

● Johnson & Bassett require a ball bearing that is accurately made, with the high load carrying capacity and the ability to work smoothly at high speeds so necessary for the many rotating parts of their Giant Package Mules.

Besides, they need a ball bearing that is practically free from Friction . . . saves labor, hazards, production delays and surplus oil involved in lubrication.

All of this is possible with SKF Bearings. Whenever *you* have a place for a bearing, be sure to use SKF, "the pioneer textile bearing". SKF Industries, Inc., Front Street & Erie Avenue, Phila., Penna.

4085

**SKF**

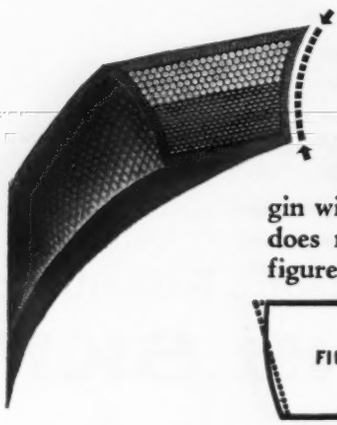
**BALL BEARINGS**

This Simple Fact...

# The SHAPE CHANGE in a bending V-BELT

## Shows Why You Want V-Belts With the Patented

# Concave Side



When *any* V-belt bends around its pulley, the top of the belt is under tension and grows *narrower*. The bottom, under compression, *widens*. A a result of these two changes, the sides of the belt *bulge out*. If the sides were *straight* to begin with, they are now forced into a shape that does not fit the sheave groove—as shown in figure 1, below.

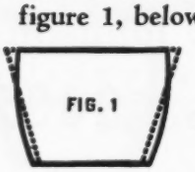


FIG. 1

WHAT HAPPENS WHEN A V-BELT **BENDS**

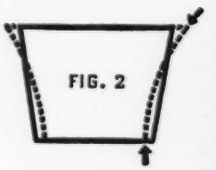
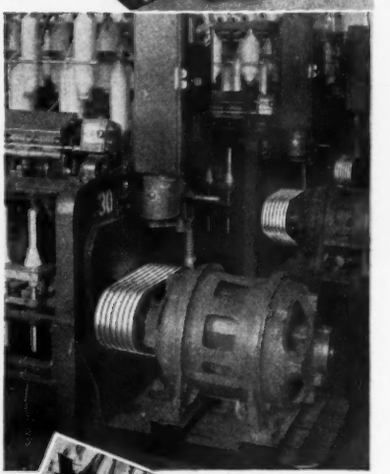


FIG. 2



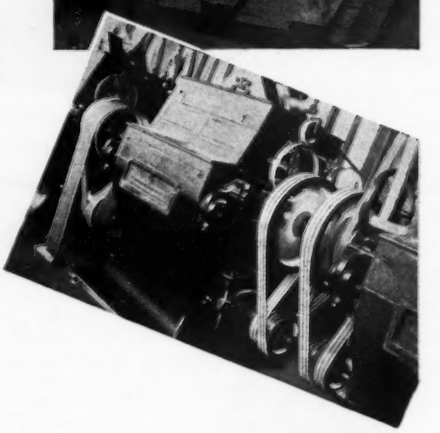


Figure 2 shows how this shape change is corrected by the patented *concave side*. The top narrows, the bottom widens—but there is no side-bulge. This insures uniform side-wall wear which means *longer life*. Moreover, the full side-width grip on the pulley carries heavier loads without slippage; which saves belt wear and also saves power!

The Gates Vulco Rope is the only V-Belt built with the patented concave side.

*Engineering Offices and Stocks in All Large Industrial Centers*

## THE GATES RUBBER COMPANY

**Factory Branches**

Terminal Building
Hoboken, N. J.

1524 So. Western Ave.
Chicago

741 Warehouse St.
Los Angeles

2213 Griffin Street, Dallas

999 South Broadway, Denver

# GATES VULCO ROPE DRIVES

# *Only* FAIR DEALERS *wanted*

MANUFACTURERS seeking to reduce production and distribution costs will find many advantages in North Carolina. But North Carolina wants no one to seek location within its borders expecting long hours of work at low pay. Sweat shop operators are unwelcome!

The advantages listed below enable industry in North Carolina to provide fair working conditions and fair wages. Managements, whose policy fits these conditions, will find a royal welcome in North Carolina.

North Carolina offers you:

*Moderate Climate*
which reduces capital investment and lowers production costs

*Efficient Native-born Labor*

*Business-minded Legislation*
tax structure and State laws constructive to business

*Strategic Location*
over 55% of the country's total population lives within a 600 mile radius

*Plentiful Raw Materials*

*Ample Economical Power*

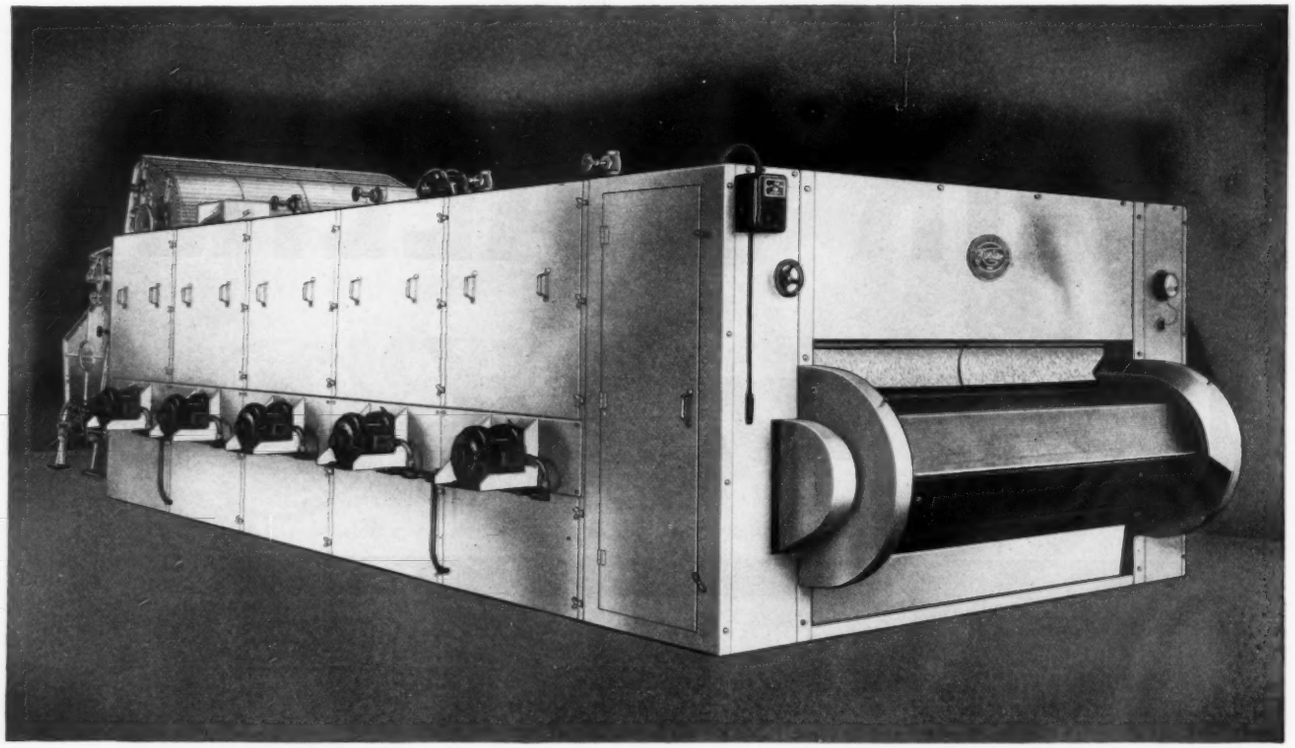
*Excellent Transportation Facilities*

Competent industrial engineers will supply facts relating to your business. Write Industrial Division, Room 42, Department of Conservation & Development, Raleigh, N. C.

*Outside* THE CONGESTED AREAS YET— *Close* TO THE RICHEST MARKETS

*North* CAROLINA
HOME OF SUCCESSFUL INDUSTRY

# 77 INSTALLATIONS



MAIL THE COUPON

## PROVE MERIT OF NEW HUNTER STOCK DRYER

In 75 installations, some of them separate orders, the Hunter Single Apron Duplex Dryer, operating on a variety of fibers has conclusively demonstrated its merit. For example, in a New Hampshire mill in less than 25 linear feet of floor space, it is drying over 600 lb. per hour, rayon, wool, cotton, etc. In a North Carolina mill a Hunter Duplex in less than 40 feet of floor space is delivering 1500 lbs. of dyed cotton hourly. In a Rhode Island combing plant a Hunter Duplex in less than 30 linear feet is delivering over 1000 lbs. of scoured wool hourly.

For complete details send for Bulletin. This new Brochure will tell you in detail the outstanding mechanical features of the machine which are unique in the Hunter Dryer. Full production data on a wide class of stock will also be sent you. You will not be obligated in any way. Send the coupon today!

Without obligation, please send new brochure describing the Hunter Single Apron Duplex Dryer.

*Name*_____ *Title*_____

*Company* _____

*City*_____ *State*_____

**JAMES HUNTER MACHINE COMPANY**

NORTH ADAMS, MASS.

*Southern Agts:* Carolina Specialty Co.,Charlotte, N.C.
*Western Representative:* E. G. Paules, 343 Bendix Bldg.
1206 Maple St., Los Angeles, Cal.

## *now we're* GUARANTEEING *'em extra production . . .*

**"If *that* isn't the best reason for buying our belting . . . !**

**"Here's the angle. We've had enough performance facts to prove that the new Research Belting will increase average machine production at least 1 or 2% over ordinary belting. It's done it in metal-working plants, in textile mills, in flour mills, paper mills — *everywhere!***

**"So you can definitely say to the plants you call on — that Research Leather Belting will increase average machine production at least 1 or 2% over ordinary belting . . . or they can have their money back."**

AND you can have *your* money back if Research Belting, on the drives in *your* plant, does not increase average machine production at least 1 or 2% over ordinary belting. Increases of 3 and 4% are not uncommon — and savings of thousands of dollars and many hours a year. It's the completely new manufacturing processes developed in our Home of Research that does it — increases coefficient of friction — eliminates wasteful stretch — insures extra machine production.

The purchasing manager in your plant can find the nearest Research Belting sales office or distributor in the Graton & Knight insert in the belting section of 1938 THOMAS' REGISTER. Give him a ring on the phone now . . . have Research Belting put on an important drive where the increased production can be measured.

MODERN GROUP-DRIVE

*Graton and Knight*

**RESEARCH BELTING**

**from the Home of Research, Worcester, Mass.**

WRITE FOR OUR HOME OF RESEARCH BOOK ON ECONOMICAL POWER TRANSMISSION

# *Error-Proof Control*

## MEANS ECONOMY IN DYEING

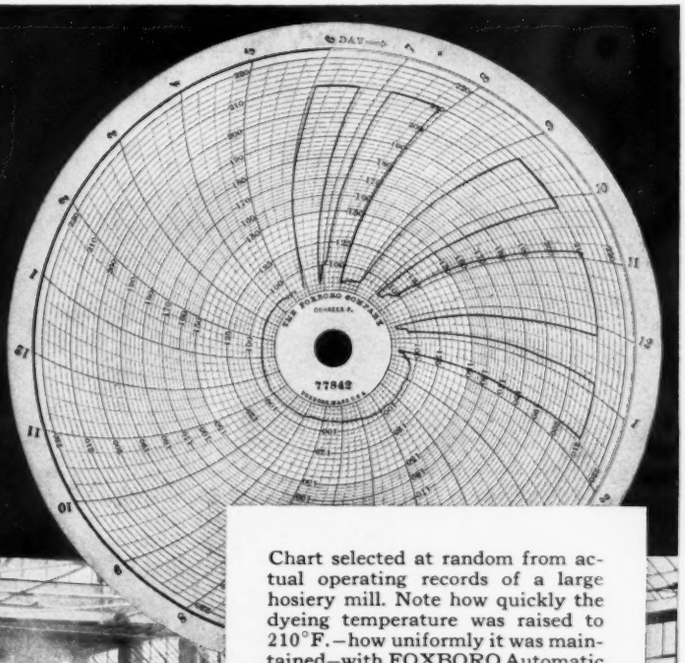


Chart selected at random from actual operating records of a large hosiery mill. Note how quickly the dyeing temperature was raised to 210°F.—how uniformly it was maintained—with FOXBORO Automatic Dye Machine Control.

*Dye Room 100% Equipped with FOXBORO Dye Machine Controllers.*

You can secure *exact* desired shades of color . . . and match them time after time without failure . . . with FOXBORO Automatic Dye Machine Control. Moreover, it saves on steam and eliminates fogged-up dye houses. It saves on degumming oils and soaps, with actual reductions of 10% to 20%. It reduces both the amount and frequency of dye and salt additions; cuts re-dyes; and, by eliminating hand manipulation, frees operators for other duties.

With the Elapsed Time Device, the Dye Machine Controller raises the temperature to the exact degree required . . . holds it for a predetermined period . . . then shuts off steam and simultaneously turns on a signal light. Such action makes dye control 100% automatic—with complete, permanent records for checking past runs and duplicating previous schedules.

Why not put FOXBORO's broad experience in the textile field to work for you? Write for full information on Dye Machine Control—and you'll probably be interested, too, in FOXBORO Precision Control for Hosiery Boarding. The Foxboro Company, 18 Neponset Ave., Foxboro, Mass., U. S. A. Atlanta office, 101 Marietta Street Building. Branch Offices in 25 Principal Cities.

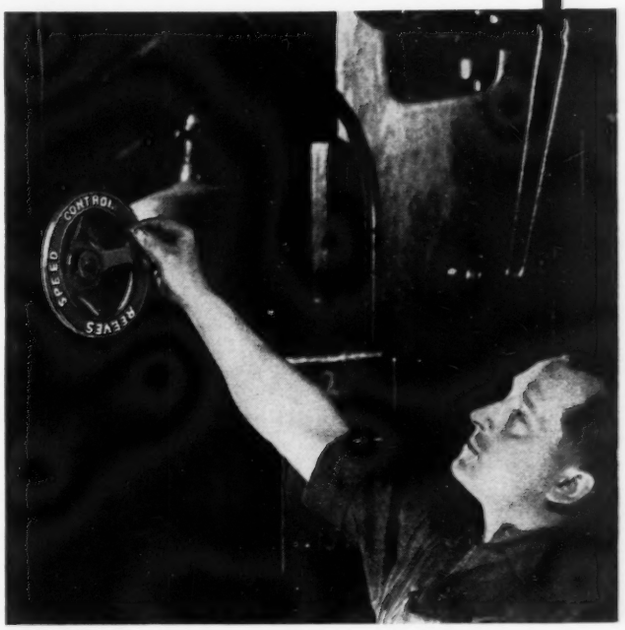
**FOXBORO**

REG. U. S. PAT. OFF.

**DYE MACHINE CONTROLLERS**

# REEVES MAKES IT EASY

## *to Operate Textile Machines* ACCURATELY




EVERY manufacturer and user of textile machines knows the importance of adjustable speed control. Variation in kind of thread and yarn, in weight and size, in moisture content, in temperature affect the speed with which these materials must travel through a machine, or from one machine to another to maintain uniformity in tension, drying and weight of cloth and to secure maximum output.

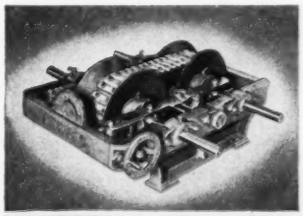
But the *ease and accuracy* with which these changes of speed can be made are vitally important, too.

If the *method* of speed control requires time, and causes trouble and inconvenience to the operator, the chances are that these changes will not be made as quickly or as often as they should. If only *limited* adjustability is provided there must always be a compromise. In either case, quality or quantity of production, or both, are affected.

On the other hand, if a machine is equipped with REEVES Variable Speed Control there is no occasion for failure to change speeds, *instantly,* when the need arises. All the machine operator has to do is to turn a handwheel or push a button to obtain the exact speed required. Completely automatic control also available. And once changed, that speed remains constant, until changed again.

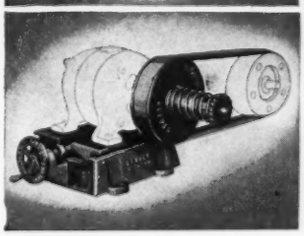
Leading manufacturers of textile machinery of all kinds now incorporate one or more of the three basic REEVES Speed Control units as standard equipment. Machines in service may be similarly equipped. Each of these units is designed for ease and convenience of mounting, in vertical or horizontal positions. Available in a wide range of sizes, designs, types and controls to meet your individual needs—and the cost is less than you would suppose.

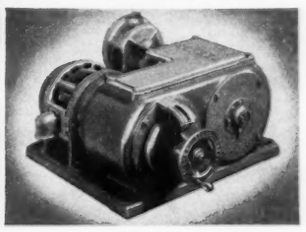
There's a REEVES Speed Control Engineer located in your city or vicinity. It places you under no obligation to obtain his advice and cooperation.



## REEVES SPEED CONTROL

*At left:* REEVES Variable Speed Transmission for infinite speed adjustability over wide range and for heavy-duty service. . . . *Below, left:* Vari-Speed Motor Pulley, a simple direct drive for light horse-power requirements. *Below:* Motodrive which combines in one compact unit, motor, speed varying mechanism and reduction gears.





**REEVES PULLEY CO., Dept. T-48, COLUMBUS, INDIANA**

Please send information on your Speed Control units and their application to (machine or process):.....

NAME.....

DEPT.....

COMPANY.....

STREET..... CITY.....

# Cutler Spinning Tape

*(A product made from the finest grade Sakelarides cotton)*
*(PATENT PENDING)*

| | |
|---|---|
| **Durability** . . . . . | the equivalent or greater than that of standard tape. |
| **Power Input Saving** . . . . . | ranging from 12% to 24%. |
| **Increased Spindle Speed** . . . | from 145 on 7's to 320 on 90's. |
| **More Even Twist** . . . . . | than obtained from standard tape. |
| **Greater Production Per Doff** . . | than obtained from standard tape, due to increase of cylinder drum speed. |
| **No Bump** . . . . . | on spindle whorl. |
| **Strength of Tape** . . . . . | higher than standard tape. |

MORE THAN FIFTY MILLS HAVE NOW COMPLETED THEIR TEST WORK ON CUTLER TAPE AND HAVE ADOPTED IT COMMERCIALLY. MORE THAN SEVENTY ADDITIONAL MILLS HAVE TESTS IN PROCESS ON CUTLER TAPE.

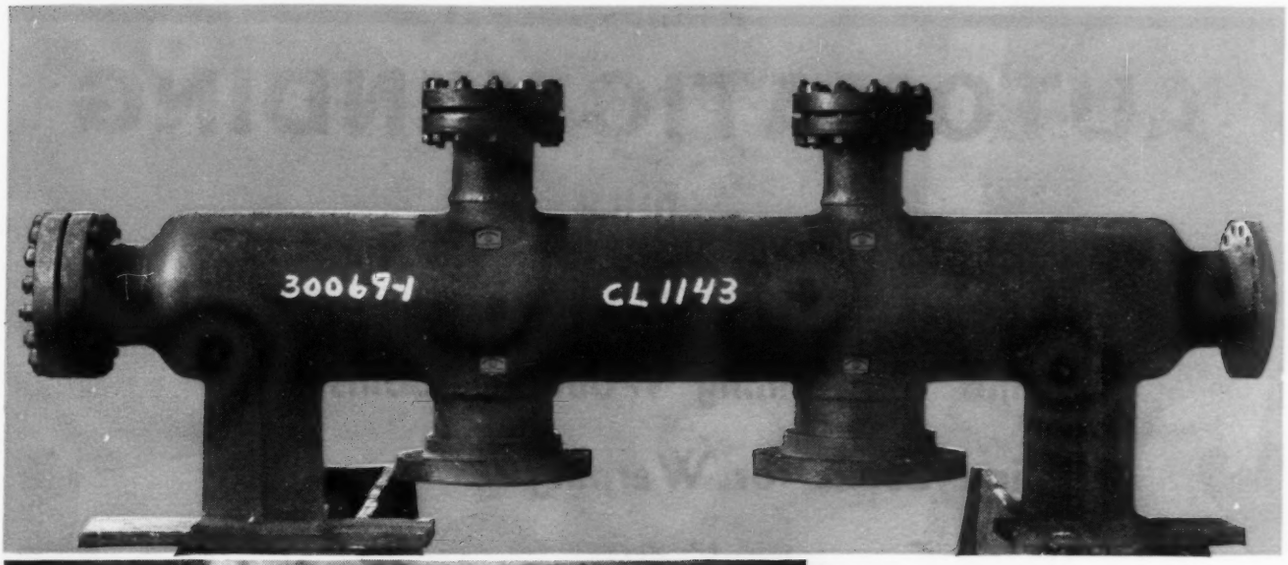
*May we be of service to you?*

## ROGER W. CUTLER

141 MILK STREET
BOSTON, MASS.

WOODSIDE BUILDING
GREENVILLE, S. C.

SOUTHERN TAPE AGENT
BYRD MILLER
WOODSIDE BLDG.
GREENVILLE, S. C.



THREE-DIMENSIONAL BENDS
Another example of complicated power installation made simple by Grinnell Prefabrication. Note the smooth contours, the compound bends, accurate to a degree.

## GRINNELL INTERPRETS PLANS INTO *Strength!*

Each specification of this 18" Header has been carried to exacting accuracy—the result of the interpretative engineering that is an important feature of Prefabrication by Grinnell. The outlets extruded by hydraulic machines permit each weld to be a plain circumferential butt weld.

The ability to interpret into piping the ideas and plans of engineers is one of the Grinnell "extras" by which your power and processing installations achieve strength and endurance. Thorough pretesting, delivery on schedule, ready qualification for insurance, plus many other requirements, are answered automatically when engineers say, "Give the plans to Grinnell." Send for interesting picture-story of Grinnell Prefabrication. Grinnell Company, Inc., Executive Offices, Providence, R. I., Branch offices in principal cities of the U. S. and Canada.

PREFABRICATION BY **GRINNELL**

WHENEVER PIPING IS INVOLVED

# AUTOMATIC WINDING

*We offer the* **ONLY** AUTOMATIC
*Winder that will—*

**Wind from Filling Wound Bobbins**

**Wind Cones for Warping**

**Wind Cones for Knitting**

**Wind Paper Tubes**

**Wind Franklin Dye Packages**

**Wind 5 to 10 Pound Twisting Cheeses**

**Tie the Fishermans Knot**

---

**LABOR**—lowest cost—can sit at work away from fly and dirt—supply and delivery at one point.

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**INVESTMENT**—lowest of automatics—slightly more than old style winders.

---

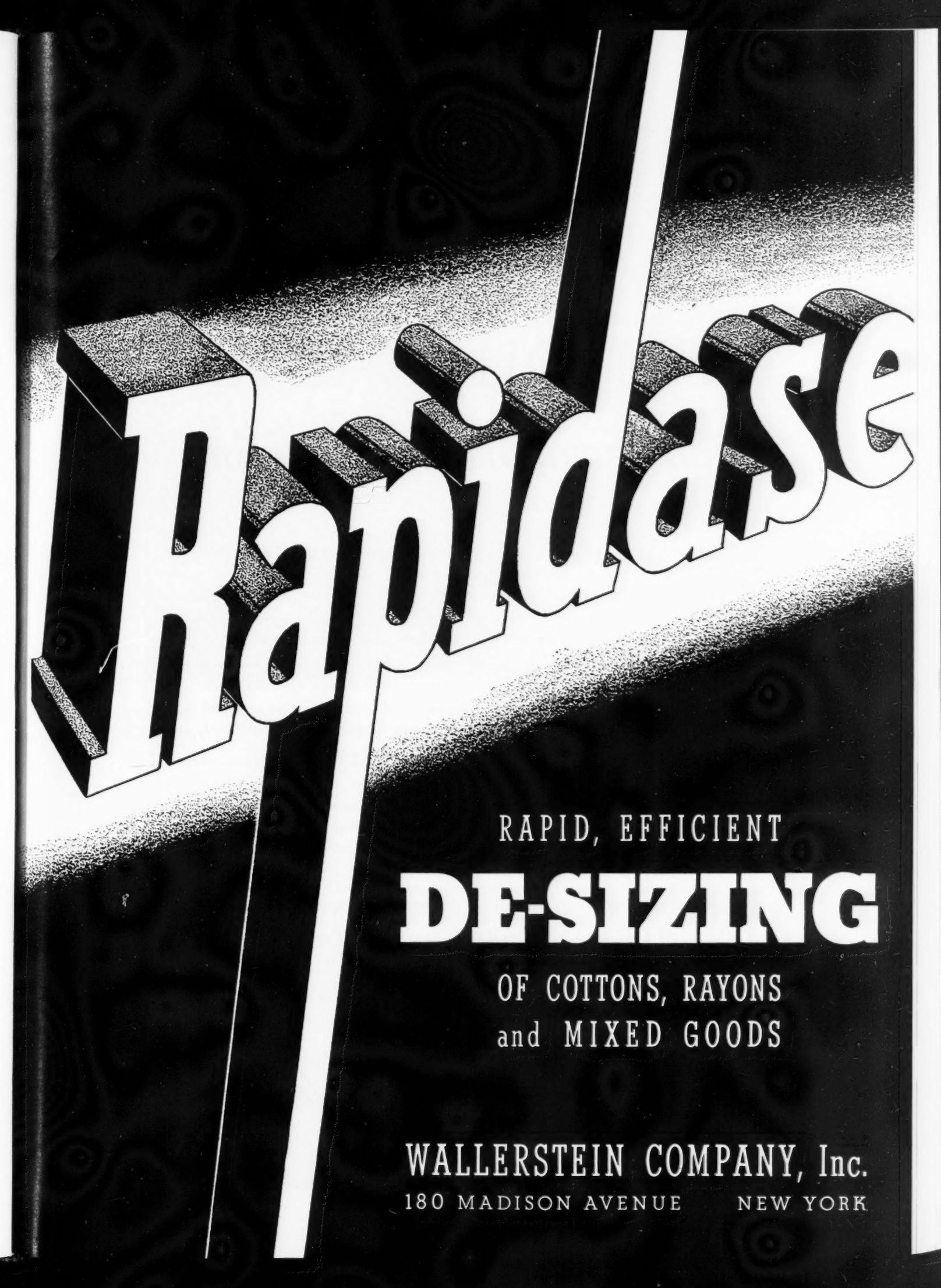
*6000 Spindles Sold in 1937*

---

## ABBOTT MACHINE CO.

**WILTON, N. H. U.S.A.**

**L. S. LIGON,** *Southern Representative,* **P. O. 1198, Greenville, S. C.**


Rapidase
RAPID, EFFICIENT
DE-SIZING
OF COTTONS, RAYONS
and MIXED GOODS
WALLERSTEIN COMPANY, Inc.
180 MADISON AVENUE NEW YORK

# *Pioneers in* HUMIDIFICATION *and Evaporative Cooling*

OVER TWENTY-FIVE YEARS AGO the first Sturtevant Evaporative Cooling and Humidifying System was installed in a textile mill!

Great strides in textile air conditioning have been made since this pioneer installation. Methods and equipment have been greatly improved. Problems which taxed early experience have been conquered. Now, a wealth of operating data, provided by hundreds of installations, serves as a reliable guide in designing new systems.

Take advantage of this valuable Sturtevant experience of over twenty-five years, when you plan and install a new evaporative cooling and humidifying system for your mills. It is an experience that eliminates costly experimenting—avoids the pitfalls of faulty methods and improperly designed equipment. It would assure you of a soundly engineered system, designed to exactly meet your particular requirements . . . combined with time-tested equipment *that will do the job*

Our engineers are equipped by long training and experience to cooperate with textile mills in the solution of their air conditioning problems. One of these engineers in our nearest office would welcome an opportunity to serve you.

THE COOLING AND AIR CONDITIONING DIVISION
B. F. STURTEVANT COMPANY · *Hyde Park, Boston, Mass.*
ATLANTA · CAMDEN · CHICAGO · GREENSBORO · LOS ANGELES · NEW YORK

**Sturtevant**
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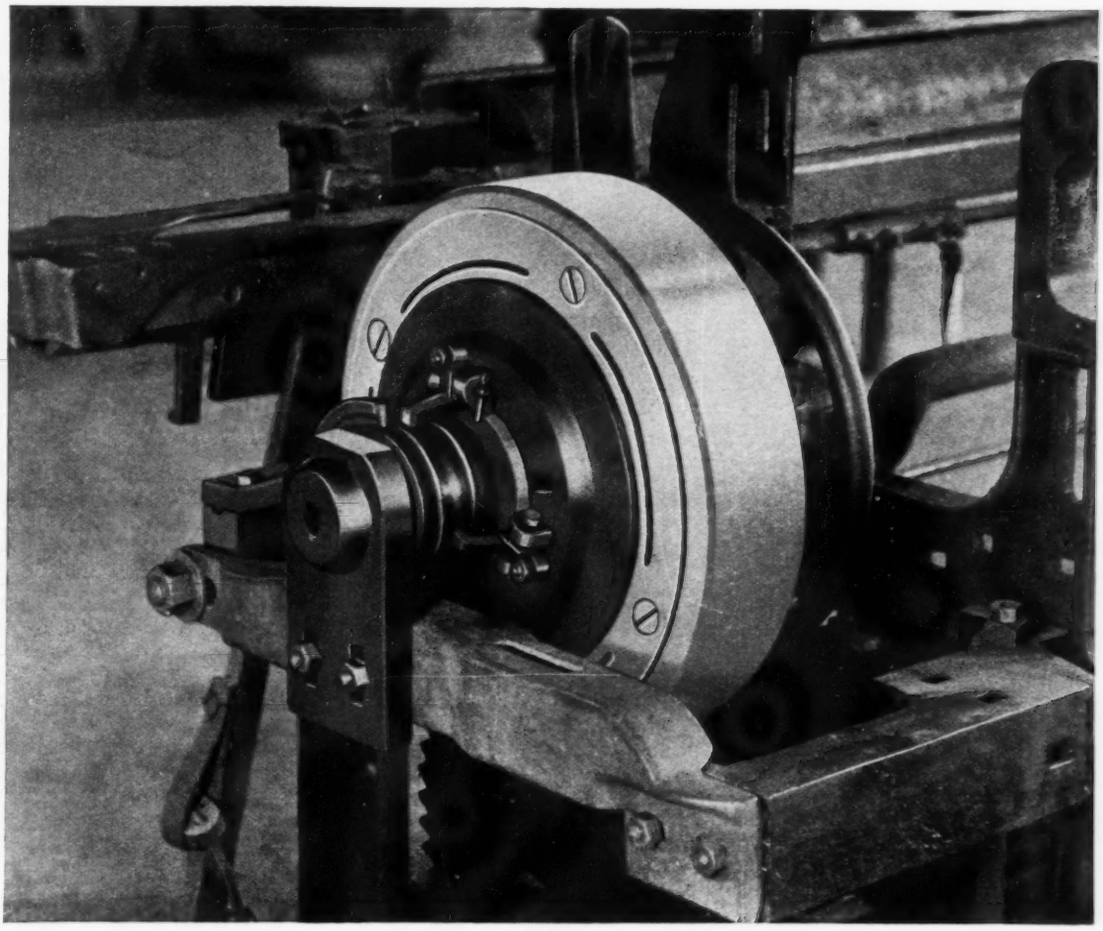
*Puts Air to Work*



*Announcing* THE WEST POINT

# *Energy Loom Drive*

Modernize your looms with the West Point Energy Loom Drive, a double disc clutch that replaces your tight and loose pulley drive.

INCREASES PRODUCTION

With the Energy Drive, loom speeds can be increased 10% or more. Stored energy in the fly wheel supplies the loom with the excess energy needed when the loom picks. The loom operation is smoother and production is increased, with improved quality.

REDUCES OPERATING COSTS

The Energy Drive utilizes the group drive principle for loom operation, reducing drive installation costs and the total power cost per yard of cloth produced.

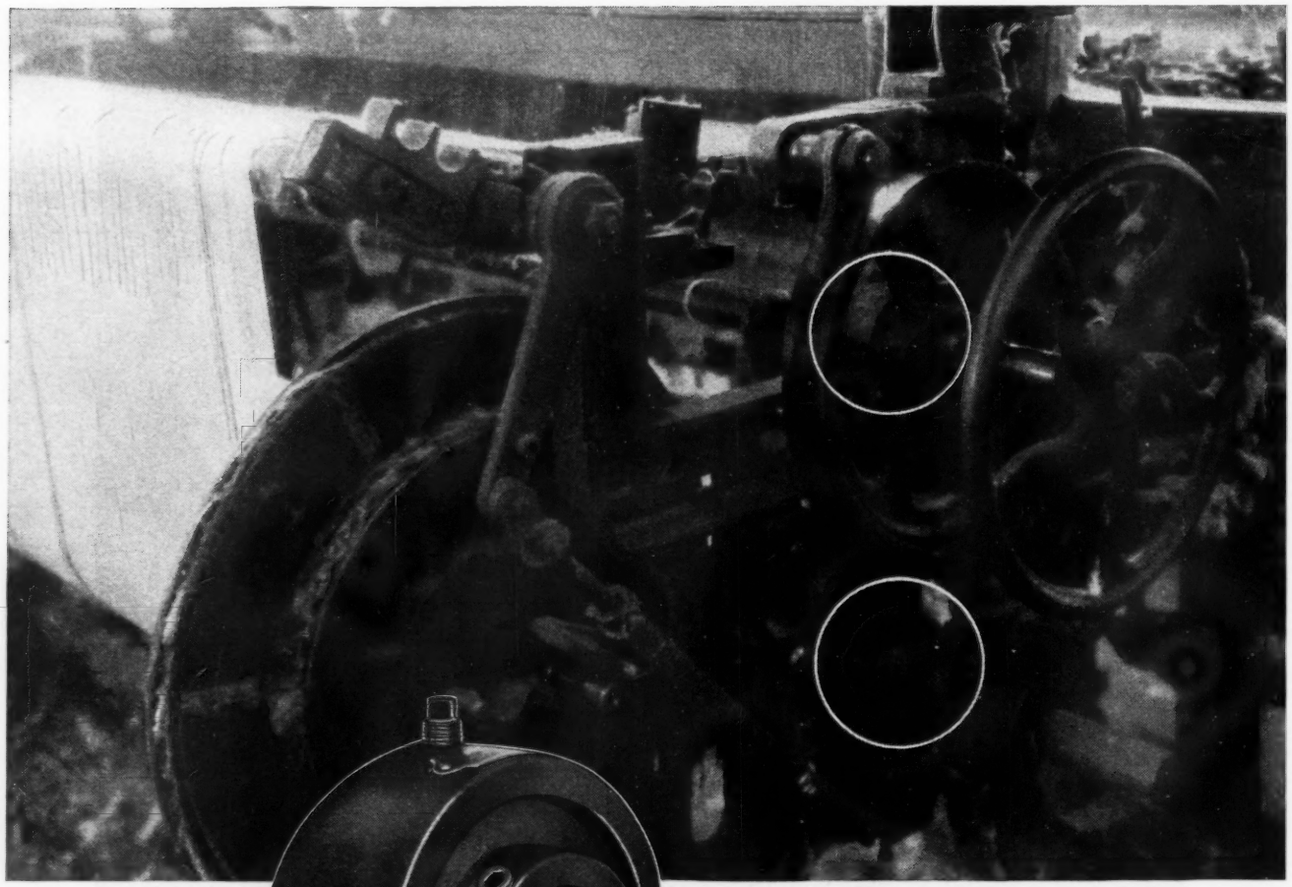
*Send for Illustrated Descriptive Literature*

**Also manufacturers of special machinery, cloth room machinery, textile machinery repair parts and gears.**

WEST POINT FOUNDRY & MACHINE CO.

(Batson-Cook Company, Owners)

WEST POINT, GEORGIA

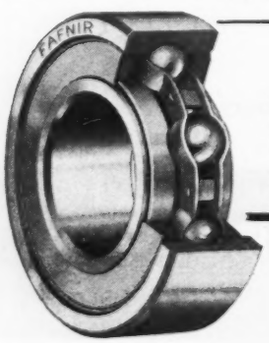


*Typical Fafnir Units*
*for Cams and Crankshafts*

BEATER BOXES • FAN BOXES • SIDE SHAFT BEARINGS
EVENER CONE BEARINGS • APRON TAKE-UP BOXES • SPINNING FRAME CYLINDER BEARINGS • PITMAN ROLL BEARINGS
CARD BOXES • SLASHER BOXES • WARPER BEARINGS
DRY CAN JOURNAL APPLICATIONS • AND MANY OTHERS

# 20% More Cloth

A production increase of 20% from your looms—by the simple replacement of plain bearings with Fafnir Wide Inner Ring Ball Bearing Units! *And it is simple*—for these Fafnir Units are so designed that they lend themselves to plain bearing replacements . . . and every one has the unequalled ease of installation provided only by Fafnir's exclusive Self-Locking Collar * * Your small investment in Fafnirs will be a permanent one . . . they operate friction-free for many years with only occasional lubrication * * Enjoy this saving, and the reduction in vibration and maintenance that goes with it . . . write today for the catalog of Fafnir Textile Bearings. The Fafnir Bearing Company, New Britain, Conn. Branch Offices: Atlanta • • Birmingham • • Boston • • Charlotte • • Dallas • • Houston.




## IDEAL TREADLE ROLL APPLICATION

Completely enclosed by integral felt seals, this unit is pre-packed at the factory with grease so that it will require no further lubrication. Moreover the double sealed construction prevents accumulated lint from retarding the operation of the cam roller. Not only does this lengthen cam life, but freedom of motion is maintained as no dragging impedes its performance. Specify Fafnir Treadle Roll Bearings for increased performance and insurance against fire hazards.

# FAFNIR BALL BEARINGS

THE BALANCED LINE • MOST COMPLETE IN AMERICA

# LARGEST VARIETY OF SULPHONATED OILS *at your service*

**Sulphonated Oils most generally used:**

**SULPHONATED OLIVE OIL** W-700 S-370D.P. W-402B W-555 W-689B

**SULPHONATED CASTOR OIL** In Every Concentration

**MONOPOLE OIL** 80 A.S. M.D. M.D.D. D.P. P.P.

**SULPHONATED RED OIL** S.I.L. 50% and 85% concentrations

**COCONUT OIL** S-23D W-530C

**MINERAL OIL** S-317 W-415A

**SOLUBLE PINE OIL** S-189 S-190

**PARA OIL** 15% and 50% concentrations

**SOAKING OIL** Silk Oil "S" and Silk Oil "O"

**BOIL-OFF OIL** #1 W-425 W-609 S-62D

**BASE OIL** S-340A S-396B S-379

**SPECIAL TYPES** S-261C Oratol W-746C Oratol W-461A

We can supply you with any type of sulphonated oil or adapt any oil to your specific needs.

Our sulphonated olive oils are made exclusively from Spanish Olive Oil by special methods of sulphonation which make them completely soluble. Our Oratol Oil series has an olive oil base combined with other vegetable oils of similar characteristics.

Castor oils, single or double sulphonated, are extremely soluble, absolutely clear, low in neutral fat and available in 35% to 90% concentrations.

Monopole Oil is a double sulphonated castor oil made in varied concentrations and adjustments to meet special requirements.

Every Jacques Wolf product undergoes strict laboratory and production control tests. The facilities of our laboratories are at your disposal. Samples of any product will be sent on request.

**Sulphonated Oils for Every Purpose**

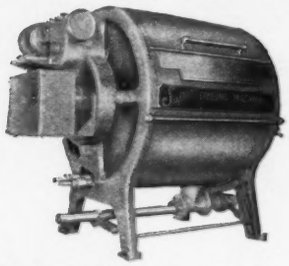
## JACQUES WOLF & CO.

**MANUFACTURING CHEMISTS AND IMPORTERS . . . PASSAIC, NEW JERSEY**

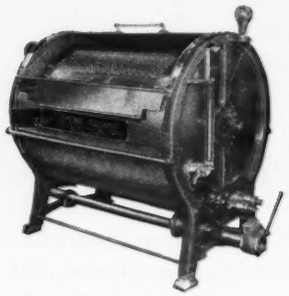
***Warehouses:*** **Providence, R.I.; Philadelphia, Pa.; Utica, N.Y.; Chicago, Ill.; Greenville, S. C.; Chattanooga, Tenn.**

# *Pack up*

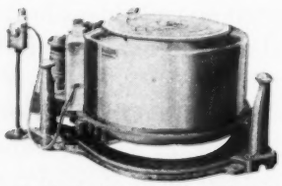
## YOUR CENTRIFUGAL AND DYEING PROBLEMS



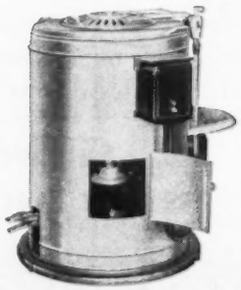
Rochester Super Dyeing Machine. Hand-honed interior finish 25 lbs. capacity.



Rochester Super Dyeing Machine. Hand-honed interior finish. 50 lbs. capacity.



48″ Underdriven Centrifugal.



17″ Monex Extractor.

**—and bring them to the Knitting Arts Show**

**BOOTHS 250 AND 251**

When you come to the textile show at Philadelphia be sure to bring your centrifugal and dyeing problems with you. We'll all be there, and we'll be glad to talk them over with you.

We'll have an exhibit of several of our machines which have set cost-cutting records in other plants—and we'll have facts and figures of other standard and special installations which may point the way for you to greater economy and efficiency. If you can't come to the show, drop us a line outlining your problem. The recommendations of our engineers carry no obligation whatever. Write to Rochester Engineering and Centrifugal Corp., 106 Buffalo Road, Rochester, N. Y.

RE PRODUCTS

# ROCHESTER ENGINEERING & CENTRIFUGAL CORP.

Westinghouse Motors and "De-ion" Combination Linestarters operating spinning frames.

# SPECIFY LINT-FREE MOTORS BY WESTINGHOUSE

Lint is objectionable on all mill machinery, but mill operators have found the way to trouble-free service with Westinghouse Lint-Free Motors. These motors have four important features:

1. Specially shaped rotor vanes circulate air through the motor at proper velocity to remove lint.
2. Glass-smooth windings prevent lint from clinging.
3. All air passages are extra large.
4. There are no screens to require cleaning.

Find out about these and other time-proved advantages of Westinghouse textile machinery drives. Call or write your nearest Westinghouse Office or Industrial Agent.

Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa.

J-20618

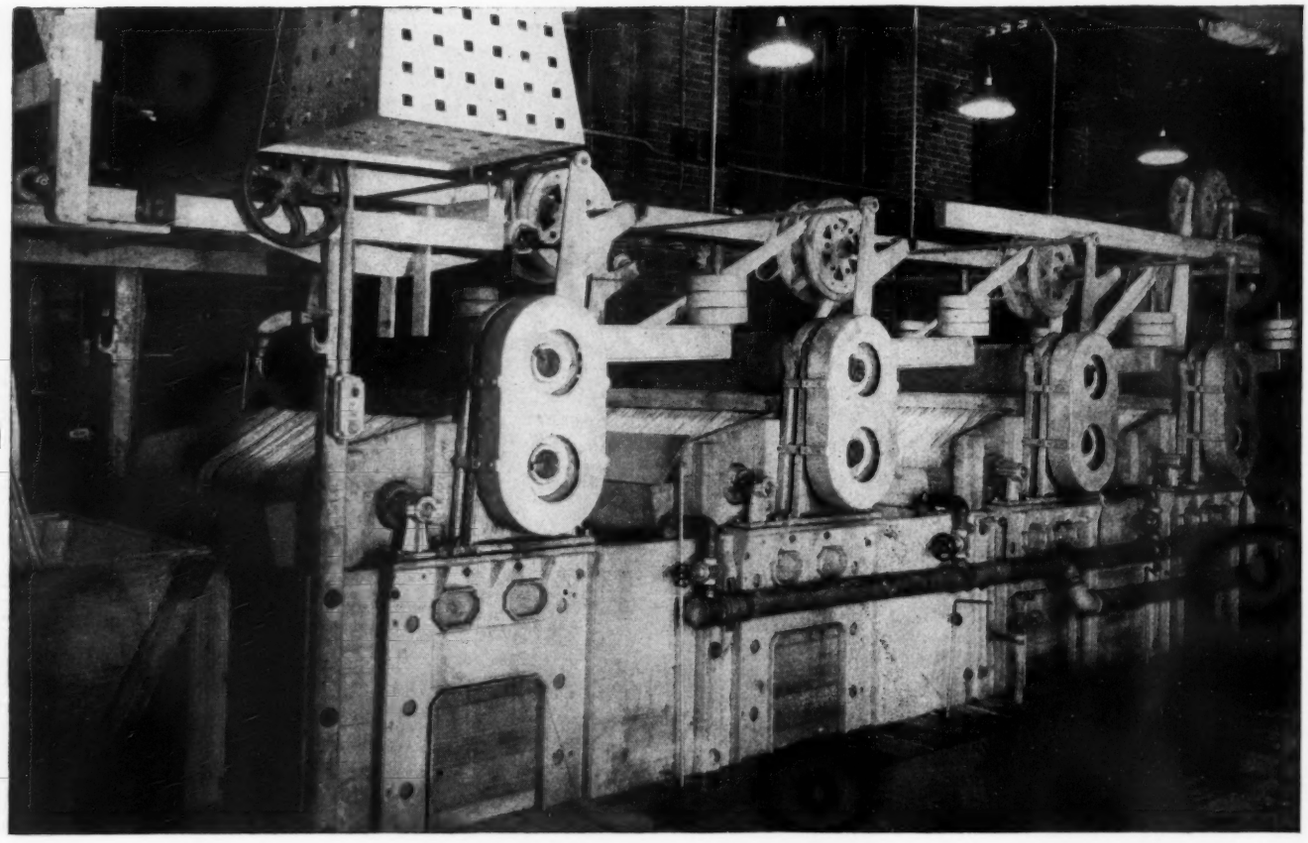
Loom Motors—extra strength, high efficiency, readily accessible oilers, long life bearings.

WK-18 Starter — Guards loom motor against overload damage.

"De-ion" Combination Linestarter.

FROM POWER LINE TO DRIVEN MACHINE YOU ARE ALWAYS SURE WITH **Westinghouse**

MOTORS • CONTROL • CIRCUIT PROTECTIVE EQUIPMENT



# A Soap That Revolutionizes Scouring Operations

Armour's CERTIFIED SOAP—a revolutionary, new, formulated, pre-tested, vegetable soap for the textile industry—has aroused unusual interest and comment—has delivered amazing results wherever used. • In worsted mills, silk throwster plants, hosiery mills, wool combing companies, yarn dyeing companies, it has won instant acceptance because its chemical make-up assures instant solubility, thorough cleansing and quick, easy rinsing. • Order a test barrel or bag of Armour's CERTIFIED SOAP today. Obtainable in Flakes, Bar and Solid form.

INDUSTRIAL SOAP DEPARTMENT

**ARMOUR AND COMPANY**

1355 W. 31st STREET • CHICAGO, ILLINOIS

# They *Moderuized* Old Machines with Alemite Drive Fittings

## NOW ALEMITE ONCE A WEEK REPLACES OILING EVERY FOUR HOURS!

OLD machines were causing lubrication trouble in a big eastern woolen mill. One bearing on a woolen mule required oiling *every four hours*, and another on a woolen card needed *four oilings* during an 8-hour shift. But since they have closed those oil holes with Alemite Drive Fittings and are using Alemite No. 33 Lubricant—*one lubrication a week* takes care of the first bearing, and *once every 8 hours* is often enough for the second!

It's easy to equip your old machines for modern Alemite Lubrication! Looms—roving frames—spinning frames—front roll stands—you can replace lint-filled, dust-gathering oil holes on *every machine* with Alemite Drive Fittings. *Cut lubrication time and lubricant cost!* Avoid contamination of product and machines! No tapping is necessary. No dismantling required. And the cost is ridiculously small!

Join the hundreds of textile mills which are *saving big money every year* by using modern Alemite Lubrication on *all* their machines! Write to us for specific recommendations — there's no obligation!

ALEMITE
*A Division of Stewart-Warner Corporation*
1884 Diversey Parkway, Chicago, Ill.
Stewart-Warner-Alemite Corporation of Canada, Ltd., Belleville, Ontario

**ALEMITE HYDRAULIC GUN**
**MODEL 5586**

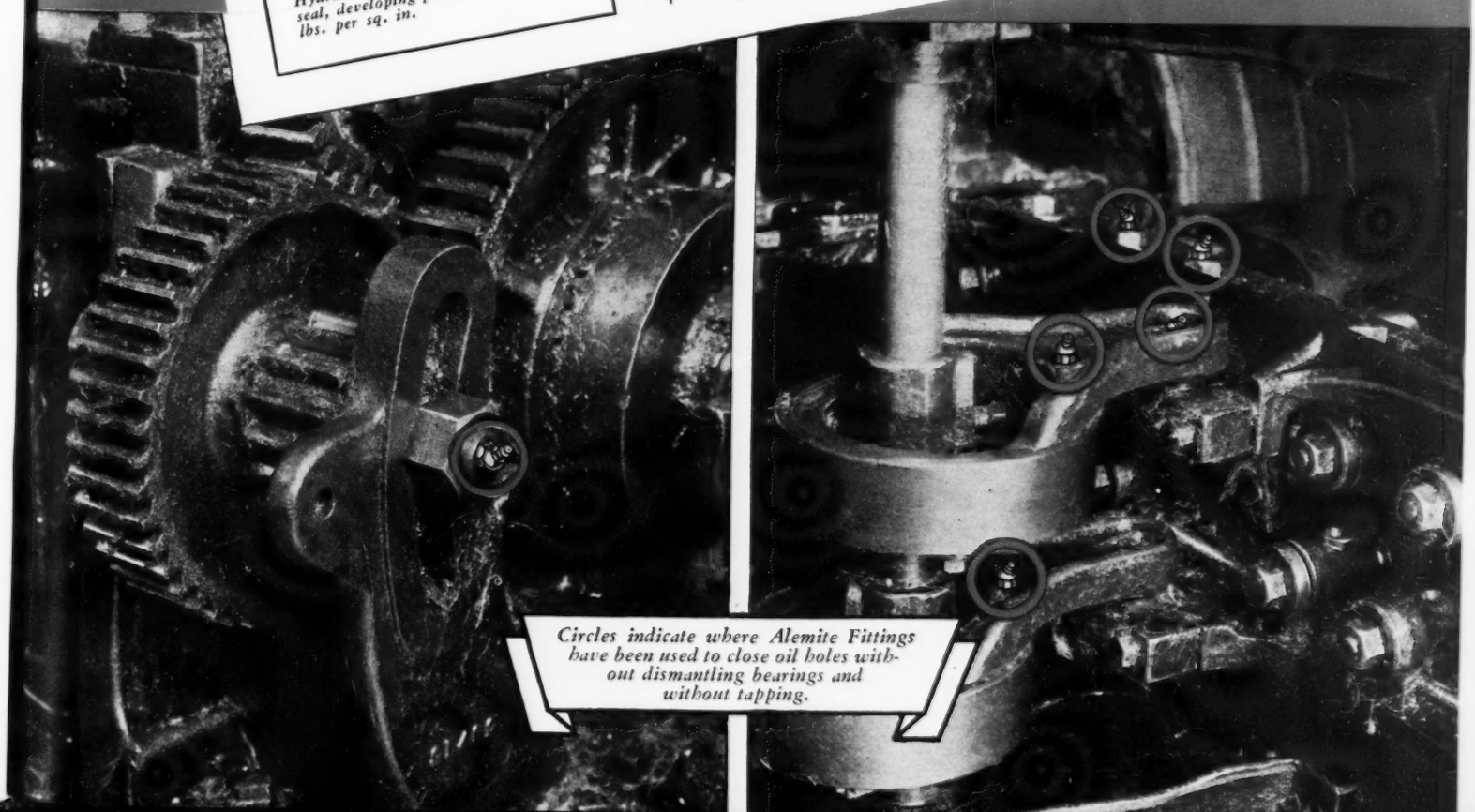
*Here's the gun which is cutting lubrication costs and preventing bearing failures in hundreds of textile mills. Holds 9 oz. lubricant; easily filled through handle; coupling grips Alemite Hydraulic Fitting to form leakproof seal, developing pressure up to 10,000 lbs. per sq. in.*

# ALEMITE

REG. U. S. PAT. OFF.

**WORLD'S LARGEST MANUFACTURER OF LUBRICATION PRODUCTS**

Enjoy Horace Heidt and his Alemite Brigadiers every Tuesday evening, National Broadcasting Co., Coast-to-Coast Network, 9 P.M., Eastern Standard Time.



*Circles indicate where Alemite Fittings have been used to close oil holes without dismantling bearings and without tapping.*

# aye, SIR

AND A **SAVINGS**, TOO
*with*
**JACOBS**
*Individualized*

- LABELS
- BANDS
- TICKETS
- STICKERS
- HANG TAGS
- BOX TOPS
- RIDERS

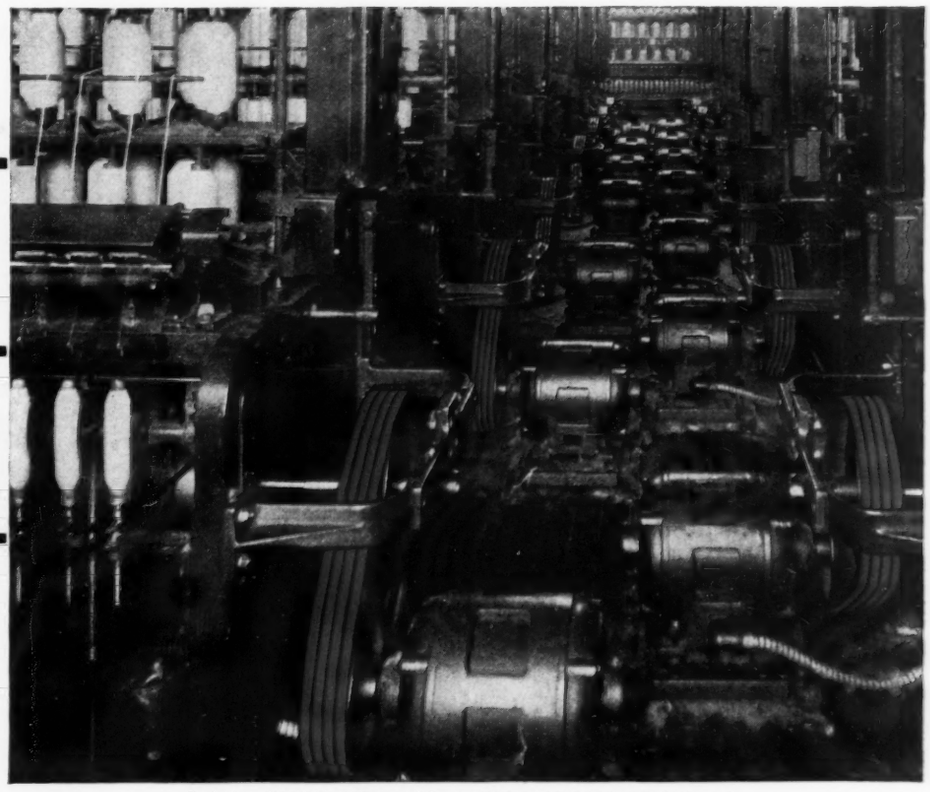
*an Inquiry will not obligate you*

THRIFT

# JACOBS
GRAPHIC ARTS COMPANY
CLINTON, S. C.

# MORE POWER TO YOU

*efficiently and economically transmitted by*



Typical textile mill installation of Condor Whipcord V-Belts in a limited space.

## Condor Whipcord V-Belts

MANY leading textile mills have found that with Condor Whipcord V-Belts on their drives, they not only get more of the available power but a smoother, more uniform power that is so vitally necessary in spinning, weaving, and other textile operations.

Condor Whipcord V-Belts embody a strength member that maintains its firmness, uniformity and flexibility even in the most punishing service. By placing this endless whipcord strength member in the neutral axis area with an extensible section above, a compression section below—stretch, slip, and internal breakdown have been reduced to a minimum. Results of this exclusive design are evident in the greater pulling power, the trouble-free operation, and the longer life of Condor Whipcord V-Belts.

You, too, will find that Condor Whipcord V-Belts increase the efficiency of your machines and keep your operating costs at a minimum. For better production, fewer "seconds" and more profit, follow the example of other textile mills—specify Condor Whipcord V-Belts.

**Condor PRODUCTS**

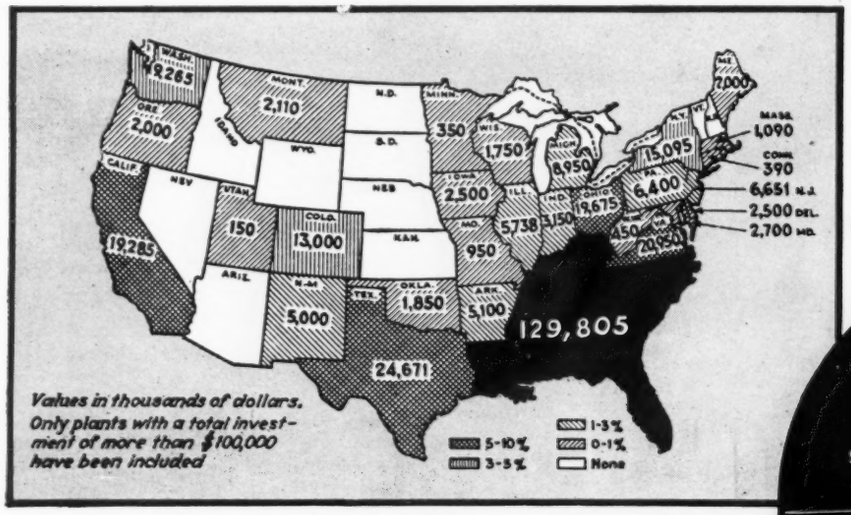
- V-Belt
- Transmission Belt
- Cone Belt
- Air Hose
- Acid Hose
- Water Hose
- Fire Hose
- Steam Hose
- Suction Hose
- Molded Rubber Goods
- Oilless Bearings
- Hard Rubber Pot Eyes
- Rubber Lined Tanks
- Rubber Covered Rolls

### 9-POINT BALANCED CONSTRUCTION

1. Minimum Inelastic Stretch.
2. Wide Margin of Strength.
3. Uniform Flexibility.
4. Maximum Resistance to Structural Breakdown.
5. Smooth Running.
6. Maximum Traction.
7. High Resistance to Side Wear.
8. Correct Lateral Reenforcement.
9. Matched Length.

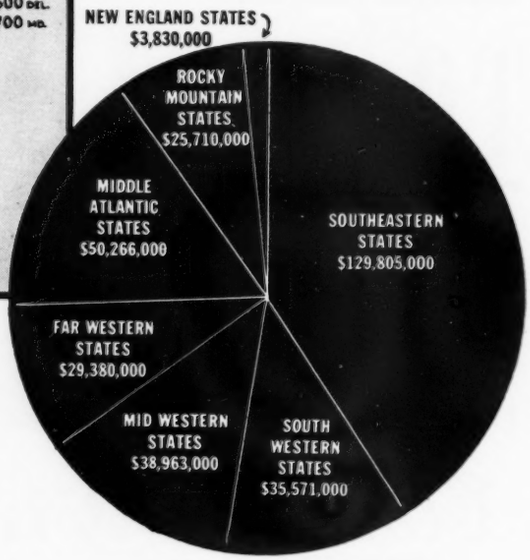
**THE MANHATTAN RUBBER MFG. DIVISION**
OF RAYBESTOS-MANHATTAN, INC.
EXECUTIVE OFFICES AND FACTORIES, 48 TOWNSEND ST., PASSAIC, N. J.

# *Industry goes* SOUTHEAST




*Source of information courtesy Business Week*

Chemical and Metallurgical Engineering reports that a grand total of $350,000,000 was invested in expansion and modernization in the process industries in 1936-1937. As shown here, the lion's share of this building program has gone to the Southeast.




PLANT location today is arrived at on a strictly engineering basis. All factors entering into production and distribution costs are carefully analyzed.

As industry investigates and proves to its own satisfaction the many outstanding advantages offered by the Southeast, more and more plants are built here. The process industries are only one example of the great industrial trek to the Southeast.

## TO AID AND PROTECT INDUSTRIAL DEVELOPMENT IN THE SOUTHEAST

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Atlantic Ocean
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*Meeting of Southeastern Governors' Conference at the White House, January 7, 1938, after luncheon with the President*

## WE, THE GOVERNORS . . .

WITH a view to aiding industrial expansion of our section and the stabilization of employment we, the Governors of the Southeastern States, set forth the following objectives: (1) Equitable freight-rates as affect the Southeast (2) Uniform taxation policies (3) Friendly labor attitude between employer and employee (4) Cooperation with Federal Government on proper major policies affecting industrial development. It will be our aim by working together on these objectives to maintain conditions favorable to sound industrial development so that the Southeast will reap the full benefits of the ever-increasing trend toward Industrial Decentralization, and gain a proper balance between agriculture and industry.

**SOUTHEASTERN GOVERNORS' CONFERENCE**

**LAWRENCE WOOD ROBERT, JR.,** *Executive Director, Bona Allen Bldg., Atlanta, Ga.*

Outstanding advantages the Southeastern States offer to manufacturers are:

*Unlimited supply of raw materials.*

*Ample power at low rates.*

*Excellent transportation facilities to growing markets.*

*Native-born labor— efficient and reasonable.*

And especially, above all others,

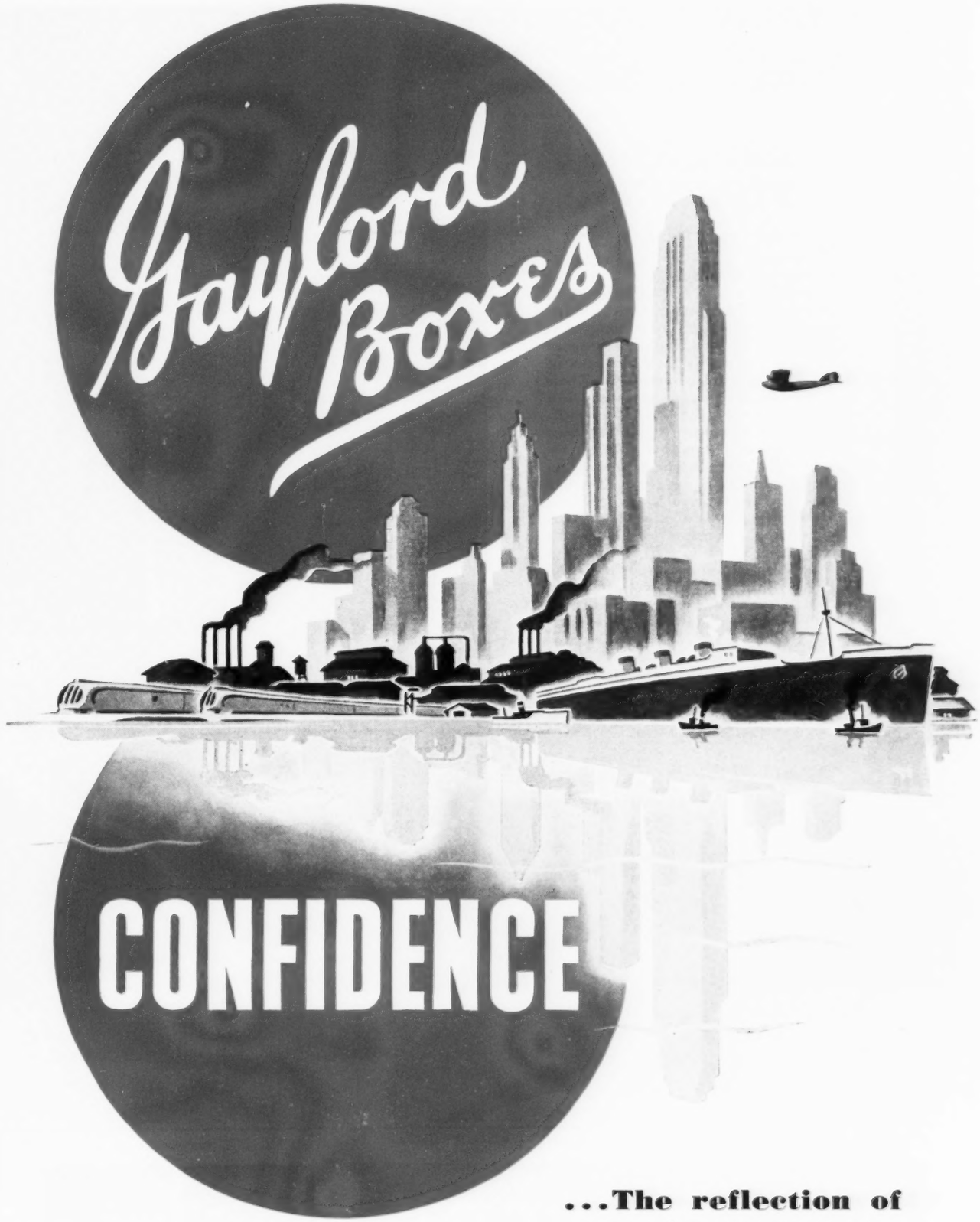
*Unexcelled year 'round moderate climate which makes possible:*

*Lower living costs for better standards of living.*

*Lower production costs.*

*Lower construction costs.*

*Lower capital investment.*

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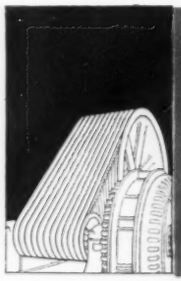
THE DAYTON RUBBER MFG. CO.
DAYTON, OHIO



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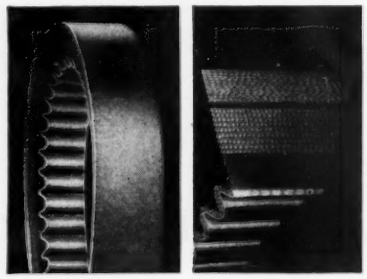

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VOL. 102 APRIL, 1938 NO. 4

# COTTON
SERVING THE
## Textile Industries

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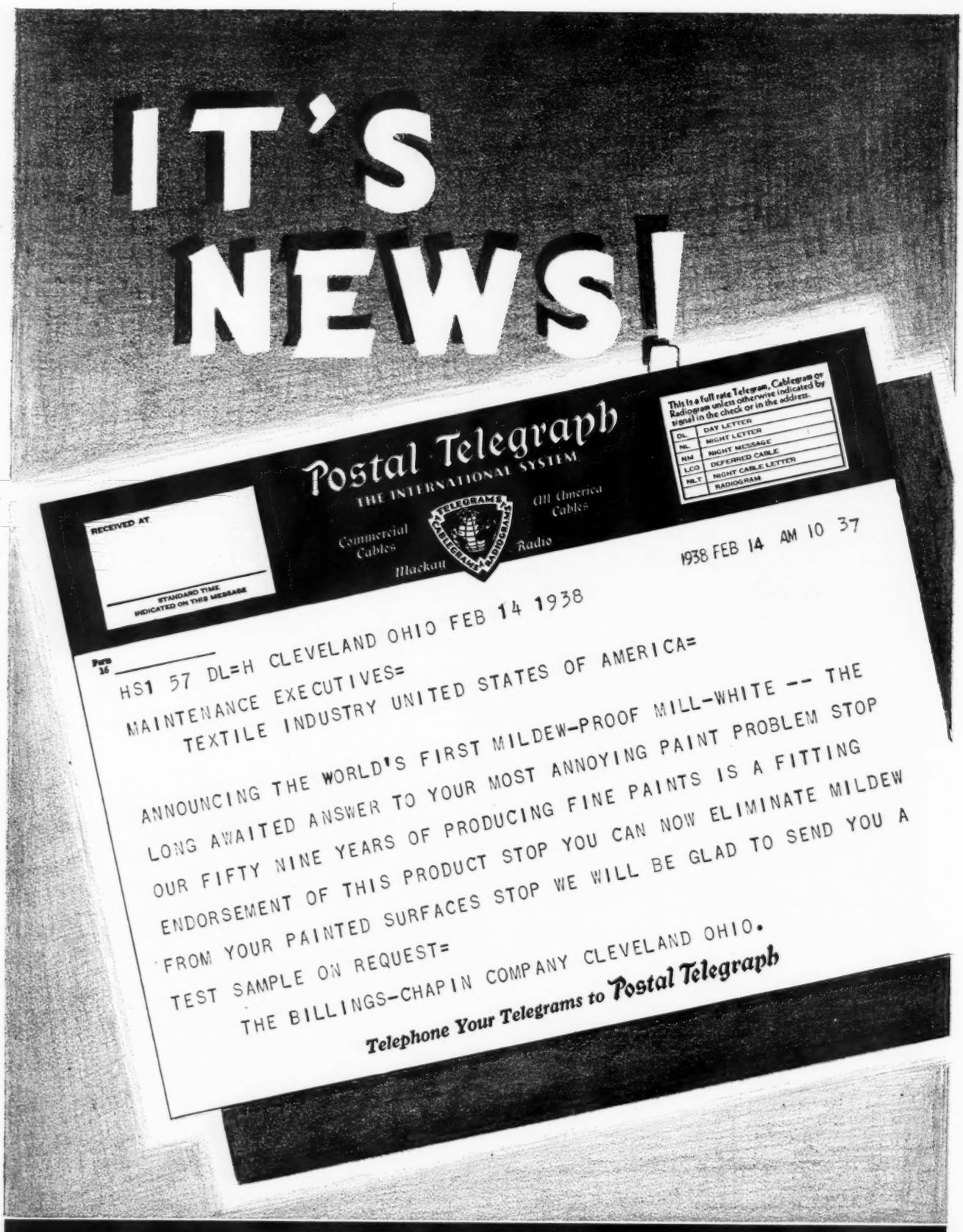
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# SHORTS AND REMNANTS

## Okay, But Who Reads Advertising?

In December issue, OLD-TIMER told of value of advertising pages, asked readers to write him as to help they had received from advertising pages of COTTON. In February issue, (we hope you read it) he quoted from the many letters received from over the U. S. and foreign countries, from mill hands to superintendents in all kinds of mills. Awards were given, with the following replies:

From a Philadelphia knitting mill man who was given 5 year subscription to COTTON—"Here I receive one of the most prominent magazines on textile work to be had anywhere, barring none, just for a few minutes of my time. . . . If I would have received a financial award, I would have received less value for knowledge is power, and money is the (so called) root of evil."

From Mexico City, Mexico—"What I wrote was only in the desire of trying to convey to COTTON the usefulness it has been to me in my work, and how much I appreciated it. My boss says that if he spoke English he would have enjoyed writing to Old Timer about COTTON, too, for he uses this magazine to great advantage in his work."

◆

## Hands Across Pacific

Too late for inclusion in the comments in February, comes a letter from the superintendent of the only cotton mill in the Philippine Islands. Mentioning the specific advertisements (in some cases as far back as 3 years) that influenced purchase he told how he had bought roller covering, size and warp conditioner, material handling and storing equipment, cloth guiders, pails and casseroles directly from the advertising pages of COTTON. Excerpts from his letter will interest mill men in the U. S., indicate problems 7500 miles across the sea.

"As there are no other cotton mills in the Islands, there is no place to go to obtain information with a view to comparing the performance and, if possible, improving the efficiency of machines similar to the ones existing in our mill. For this reason, I have acquired the habit of going thru COTTON from the front cover, page by page, to scrutinize and read the illustrations and contents of the advertisements of the different manufacturers. . . . Dear OLD-TIMER, there is still plenty of improvement in this old mill. Please remember, OLD-TIMER, that your frankness in all the articles appearing in your column in COTTON since subscribing to this magazine have led me to tell you frankly also my shortcomings as superintendent."

DOMINGO S. MENDOZA
Philippine Cotton Mills, Inc.
Manila, P. I.

◆

## Liked Sellers Hosiery Article

"While we are on the subject of comments, I think your article on Sellers Hosiery Mill was very interesting."

WM. O. MCMILLAN
Burlington, N. C.

### Textiles and All Industry

**The relative stability of the textile industry is borne out in comparisons of production records in all textiles with the averages of automobiles, iron and steel and all industry in the January issue of Factory and Industrial Management. Figures are given below for 1929, 1933 and 1937 based on a production index of 100 for 1929. The low point reached on textile production was in 1932—around 75. This compared with the low of around 30 for automobiles and 20 for iron and steel and 52.9 for all industry in that same year.**

| | 1929 | 1933 | 1937 |
|---|---|---|---|
| Textiles | 100 | 84.4 | 105 |
| Automobiles | 100 | 35.5 | 94 |
| Iron and Steel | 100 | 40.7 | 101 |
| All Industry | 100 | 63 | 97.5 |

## COTTON Articles in New Textbooks

A series of new textbooks on textile manufacture, embracing up-to-date developments in methods and practices are being prepared under the direction of H. H. Willis of Clemson College under the general guidance of a committee of the Textile Foundation. This organization is devoted to development of research and education in the textile industry. These have met with an excellent reception from schools and also among the mills.

A review of the six volumes published to date indicate that more material has been taken from COTTON than from any other magazine. In the sixth volume covering spinning two articles on tension of spinning frame bands and on effect of adjustments at the spinning frame on yarn strength have been reproduced bodily from past issues of COTTON. A third article in this issue is based on a spinning ring from COTTON.

We appreciate this tribute to the value of COTTON'S editorial material, believe it indicates the educational value of our pages.

◆

## Cord Article Widely Read

"We appreciate very much your handling this for us, as the story has been quite widely read and should be worth something in the way of stimulating interest in our new cords. I have had several to tell me that after reading the patent and the article they still do not know how we do it."

R. B. NEWTON
Supt., Bibb Mfg. Co.
Columbus, Ga.

◆

## Article to Customers, Employees

"I am delighted with the reprints (from February issue). You did an excellent job. . . . We have decided in addition to sending some to our customers, to also distribute them to our employees.

A. STRAUS
Pres. Archer Hosiery Mills
Columbus, Ga.

## Our One Act Playlet

Time—March 4, 1938, 10 a. m.

Scene—Office John C. Fonville, Associate Editor, COTTON, 1020 Grant Building, Atlanta, Ga.

Characters—Mr. Fonville and Mr. Arthur Thomas, Gen. Mgr. Opelika Mills, Opelika, Ala.

Telephone rings. . . . "Long distance, Opelika calling Mr. Fonville."

A. T.—"I have a copy of your Nov. 1936 issue containing a convention report on a Spartanburg, S. C., meeting where Mr. J. A. Morrell of Victor-Monaghan Co., Greer, S. C., told of a patented device for improving the evenness of laps from pickers."

J. C. F.—"I remember that meeting, Mr. Thomas, as I reported it myself."

A. T.—"I want to get further information on this device. Can you get it for me?"

J. C. F.—"I'll be pleased to write Mr. Morrell today and get all of the data for you, Mr. Thomas." (Aside—"Here, he saves that and asks about it 16 months later, and I wondered if anyone ever paid any attention to those convention reports.")

Curtain.

◆

## More Cross-Indexes

"I want to thank you for the cross-indexes and for the March 1935 issue of COTTON. That was the most pleasant surprise I've had this year. In my three and one-quarter years of COTTON, I have an excellent reference library with every article easy to find."

JOE P. HUGHES
Eno Cotton Mills
Hillsboro, N. C.

"We would appreciate very much your sending us the cross-indexes of COTTON for the years of 1934, 1935, 1936 and 1937."

JOSE F. LLAGUNO
Industrias Textiles, S. A.
Monterey, N.L., Mexico.

"I shall appreciate your sending me copies of your cross-index for the years 1934-37 inclusive."

GEORGE WEST
Whitin Machine Works
Whitinsville, Mass.

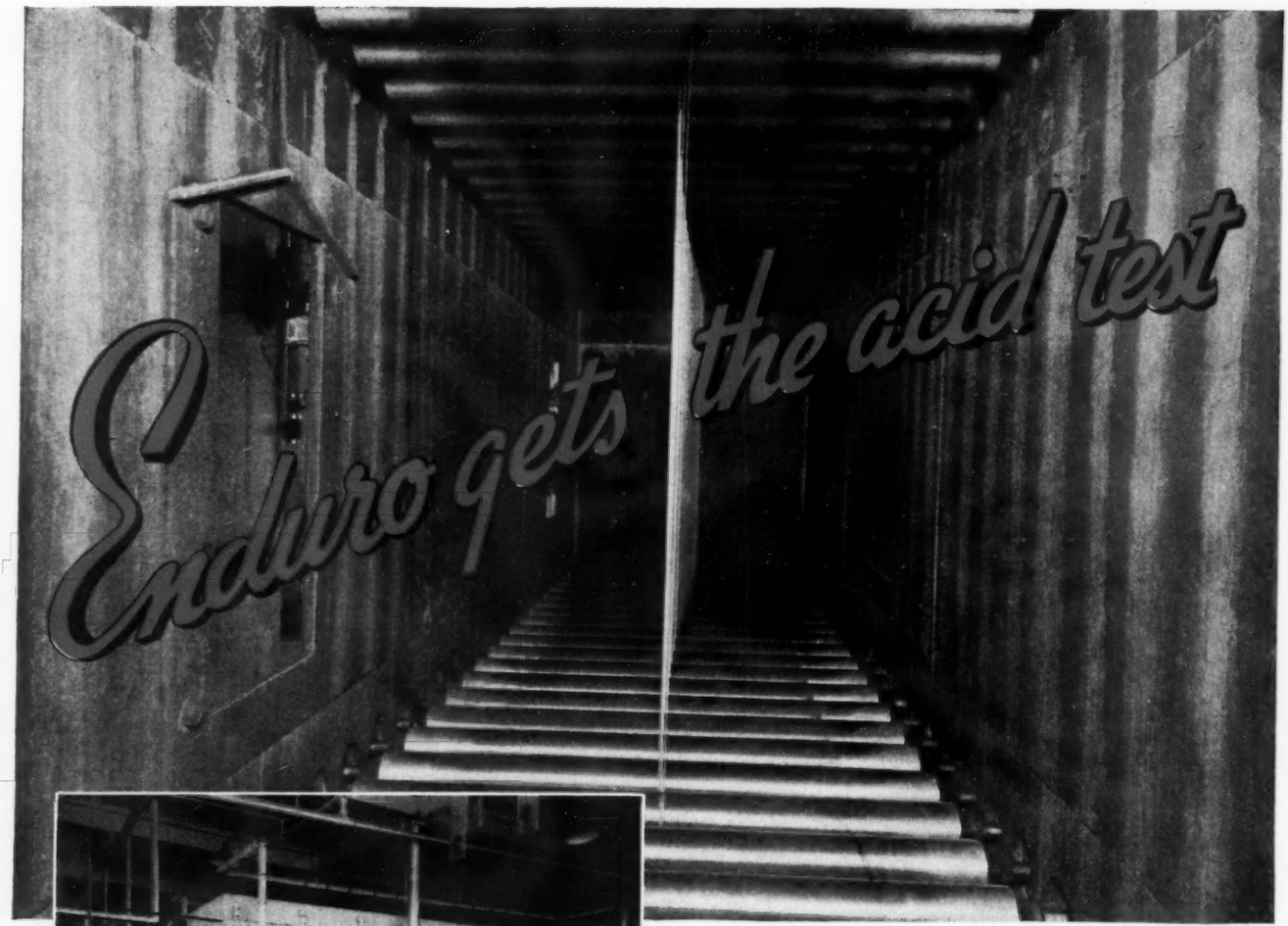
"Please send me index for volume 100 and volume 101."

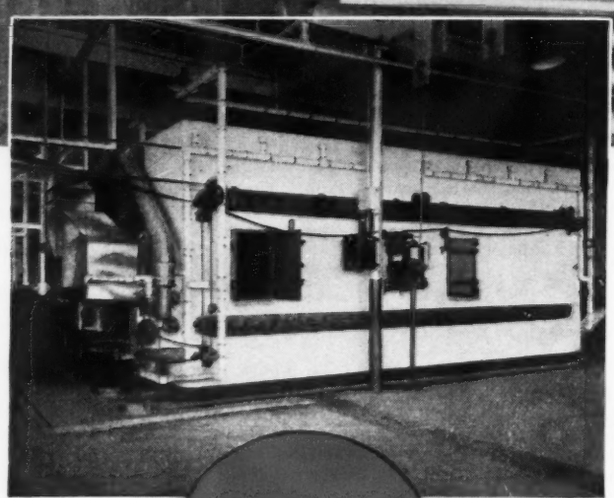
W. L. BROWN
Supt. Opelika Mills,
Opelika, Ala.

"Will you please send us a binder for binding the twelve issues of COTTON for 1937."

R. H. CAUSEY
Clark Thread Co. of Georgia
Austell, Ga.

(COTTON appreciates the increasing number of readers who are keeping a complete file for reference, regrets lack of binders. These can be secured for $1.50 to $2.00. Our permanent file is bound by outside bindery for about $3. Information on request.)



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STEEL AND TUBES, INC. BERGER MANUFACTURING DIVISION TRUSCON STEEL COMPANY
UNION DRAWN STEEL DIVISION NILES STEEL PRODUCTS DIVISION

APR 16 1938



COTTON
SERVING THE
Textile Industries

April, 1938 Vol. 102 No.

# Installment Buying—an Editorial

OBVIOUSLY, there can be no depression except after an inflation. Where there is a hang-over, there must have been a binge, and a depression is nothing but the financial hang-over from an inflationary binge.

We are always going to have inflations and depressions; there is no cure for them. The only way to prevent them will be to invent a new kind of human being. Optimism and pessimism move in waves. A small inflation breeds a big one. Good times almost inevitably lead to better times, and better times will develop a booming psychology of optimism that invariably results in too much extension of credit, too much expansion of industry and a general over-exploitation of whatever real degree of prosperity may exist. This unwarrantable optimism, this rosy view of the future, extends all the way from the big corporation that puts out a bond issue to build a plant it doesn't need to the humblest workman who persuades an installment house to sell him something he didn't need, for money he hasn't got.

OF ALL of the machinery possessed by the United States for staging a rip-snorting inflation that is bound to lead to a horrible crash, there is probably nothing quite so deadly as our plan of installment buying. Installment buying has been vigorously defended by our greatest industrialists and most profound economists, but the arguments advanced in its favor are eminently superficial, and it is rarely that anyone condemning it exposes the basic principle of its perniciousness. Most of the arguments we hear against installment buying are that the purchaser pays an unreasonable price; that he is persuaded to buy something he doesn't need to the exclusion of something he ought to have; that lots of installment selling concerns are a bunch of gyps that sell the poor victim something that they know he can't pay for and then take it away from him when he has nearly paid out; that it encourages thriftlessness on the part of those who indulge in it, or other purely moral objections. The real, fundamental objection to widespread installment purchasing is its terrific potentialities for causing inflation; inflation that spreads like a prairie fire and subsides as quickly.

AS AN illustration of the devastating effects of the installment system, let's take a cross-section of 2,000,000 salaried people whose average income is $1500.00 a year. This group has therefore $3,000,000,000 to spend during the year. No matter what they want or how bad they want it, they are only going to have this $3,000,000,000. In the ordinary course of events, these people would purchase what they needed, as they needed it, and the purchases would be spread very uniformly over a year. Following a serious depression, with restricted credit and careful scrutiny of extended term accounts, these 2,000,000 people have gotten out of the habit of buying stuff on time, and they are paying as they go. At the first flush of a coming inflation, with general loosening of credits and a feeling of optimism on the part of manufacturers and merchants, there is a concerted drive to sell things. Times are looking up and everybody wants to get his share. Credits are easier, and people with good steady jobs can buy on time. Conceivably, the 2,000,000 guinea pigs under consideration could be persuaded to anticipate their purchasing by all sorts of bear stories about rising prices and the advisability of buying now instead of waiting until things cost more.

For illustrative purposes, we may assume that out of the $3,000,000,000 income of this group they spend $1,000,000,000 for housing, fuel and other such fixed charges; another billion for food, gasoline and other items which must necessarily be bought continuously. The third billion constitutes their expenditure for clothing, shoes, automobiles, furniture and other things which do not have to be bought throughout the year, but can be purchased at one time as well as another. By constantly playing up the threat of increasing prices, it is not difficult to persuade these people to anticipate their demands, to buy the new suit or the new car or the new furniture now, instead of waiting until the family budget covered it.

This is the second in a series of editorialized discussions on subjects of a general scope that have a specific relationship to the interests of textile manufacturers. As stated last month, the business, economic and political activities of this country are so complex and intertwined that the major problems of an individual or of a business cannot be segregated or compartmentized. Thus, we feel that the textile reader, as an American business man, has so definite an interest in the broader subjects discussed, in these articles that they have a logical place in his industry-reading and industry-thinking. Your comments will be helpful and appreciated.—THE EDITOR.

In that way, the whole billion dollars may be spent in the first six months of the year, or the first five months, or four months, or three months; the principle involved is the same. If all of this purchasing power is liberated in the first six months of the year, it creates a doubled demand on the sources of supply which would normally take care of the demands of these purchasers over a 12-month period. Factories put on double shifts, or work overtime; bonuses are paid for extra production; factories running on part time are going full; thousands of unemployed people are put to work and earn wages, which immediately entitles them to turn to credit. These thousands of newly employed people with fresh purchasing power of their own begin buying on installments the things that they have had to do without when unemployed, or when working part time. These purchases put more people to work and start more purchasing power, and so on, like the house that Jack built.

FACTORIES loaded with orders must be prosperous, so the next step is a series of agitations for higher wages. If business is so good, labor must have its cut on the profits, and inevitably the promised higher prices which persuaded the original 2,000,000 to buy ahead of time begin to make their appearance in the market. The inflation by this time is in full swing; it has been propagated with almost lightning rapidity, but what has actually been accomplished? Nothing. All in the world that we have done is to crowd 12 months' business into six months. Nothing more. The original $500,000,000 of purchasing power that should have been spent in the last six months of the year has been spent in the first part of the year, and the people who spent it are completely out of the market for such goods for the last half of the year. Since they are out of the market, the workmen who would normally supply their demands are laid off; the extra help are fired, and with them goes glimmering any possibility of their meeting any obligations incurred on account of their expected employment. The same thing happens all the way down the line, and all of the premature purchasing power liberated too rapidly has evaporated, and the result is swift and disastrous collapse.

When people are optimistic they can easily get very optimistic, and when they are pessimistic they can get very gloomy. When business begins to crumble after a boom, it not only slumps rapidly from the natural drying up of too much purchasing power caused by too much anticipation, but there is always a fearfulness generated among the public, a feeling of retraction which hastens the action of the natural forces of recession.

THE SAME reasoning applies equally to industry as well as the consumer. In the stock market it is easy to see what would happen if the credit restrictions were lowered so that instead of requiring 50 per cent margin for trading in stocks, this were cut to 25 per cent or even 10 per cent. Trading in stocks on a stock exchange on a margin is technically installment buying, and if the margin requirements are lowered enough, the adventurous speculator being able to buy two shares of stock where he was only formerly able to buy one, very quickly begins to boost the price. Ordinary installment buying is something like running the stock exchange on a 10 per cent margin. If you have a year to pay for something, you pay about 10 per cent down and the rest of it in easy, painless payments, when, and if, you have the money.

Ordinary installment buying has become such a feature in the American mercantile scheme that it is difficult to control, yet devastating in its possibilities. It is difficult to see how it creates anything; it merely anticipates. The vast majority of consumers in the United States have very definitely fixed incomes. That is, the maximum is fixed; they may make less than they expect to, but practically never make more than the yearly salary, or the daily wage rate computed on a yearly basis. Of course, theoretically, if installment purchasing could be spread out uniformly it would present no economic problem. It is, however, practically impossible to do this. In bad times people are cautious about their commitments and merchants even more cautious about extending credit. In good times the old installment racket goes rolling through the merchandising community like a snowball, leaving nothing but dry financial ground in its wake.

THIS IS NOT intended as an indictment of sound installment purchasing if the purchaser needs something and knows he is going to be able beyond any reasonable doubt to pay for it, there is nothing any more reprehensible about buying it on the installment plan than there is about going to the bank and borrowing money to get it. However, there is an enormous installment business done on a type of credit that bankers would hardly consider acceptable. A vast amount of installment business is nothing but just a plain racket. Nearly every medium to fair-sized town has some gyp furniture house that will sell a $200.00 radio, a $500.00 lot of furniture, or a $300.00 piano to some mill hand who cannot possibly afford it, and then after squeezing all the payments they can get out of him, they will repossess the goods and sell them with the same intent to somebody else for further re-possession. In larger towns, there will also be gyp clothing stores that will sell a $50.00 fur coat for $100.00 on terms of $10.00 down and $10.00 from now on. Most automobiles, either new or used, are sold on time payments, and about the only thing requisite to the ownership of an automobile is a down-payment and a little optimism.

This type of installment buying has its moral implications, but a negligible economic effect. The destructive force of the installment system is confined principally to the feature of anticipation of purchases; to the speeding up of buying to avoid expected higher prices; the liberation of forces that pile up a tidal wave of inflation which can subside so suddenly that it leaves everyone high and dry, wondering what happened, why it happened, and what is going to happen next.

# ACMA Convention at Augusta to be Restful and Profitable Occasion

Left, R. E. Henry, retiring president, and right, W. M. McLaurine, secretary-treasurer, American Association . . .

THE 42nd annual convention of the American Cotton Manufacturers Association will be held at the Bon Air Hotel, Augusta, Ga., on April 29-30. It will as usual bring together the leaders of the southern textile industry.

The regular pre-convention meeting of the board of government will be held following a 1:00 o'clock luncheon on April 28, at the same hotel.

On the evening of April 28, at 8:00 o'clock the members present will have an informal dinner followed by a style show arranged by Miss Catherine Cleveland of The Cotton-Textile Institute. In this showing will be the latest styles in cottons for wearing apparels for ladies. The Cotton-Textile Institute is also preparing a collection of southern-made goods, indicating promotion, progress and new uses. This will be on display in the hotel during the entire convention.

The convention proper will open in the convention hall on Friday morning, April 29, at 10 o'clock, with R. E. Henry, president of the Association, presiding. The general theme of the convention will be "The Social and Economic Contributions of the Cotton-Textile Industry to its People and to the South and Finally to the Nation."

In these days when all industry is struggling for existence, when all of the evils, real and imaginary, are being paraded by politicians and peep-holers, it was thought expedient to recapitulate some of the positive facts for the people. Educational in its deepest aspects is the motive of this program.

At the session on Friday, April 29, Rev. John E. Hines, rector of St. Paul's Episcopal Church, Augusta, Ga., will deliver the invocation. Honorable R. E. Allen, Jr., mayor of Augusta, will deliver the address of welcome, and R. R. West, president of Riverside and Dan River Mills, Danville, Va., will respond. W. M. McLaurine, secretary, will then read his report of the activities of the Association for the fiscal year.

Hon. Julian S. Miller, editor of the *Charlotte Observer*, Charlotte, N. C., will deliver an address on "The Economic Contributions of the Cotton Textile Industry." Dr. Marion Luther Brittain, president of the Georgia School of Technology, Atlanta, Ga., will deliver an address on the subject, "The Social Contributions of the Cotton Textile Industry."

The final address of this first period will be that of President R. E. Henry. The session will then adjourn for lunch.

There will be no formal sessions for the afternoon. Opportunity will be afforded for committee meetings, golf and a renewing of old acquaintances seen only at the annual conventions.

During the day, a committee of Augusta ladies will appropriately entertain the visiting ladies.

The annual banquet of the Association will be held at 8 P. M., on Friday in the banquet hall of the hotel with President Henry presiding. After the distinguished guests are presented a large choir of negroes from Bettis Academy, under the direction of Dr. W. A. Nicholson, the president of the Institution, will render a group of negro spirituals and plantation melodies so typical of the old school. A committee which was touring the South a few years ago, searching for recordings, the real plantation songs and spirituals gave to Bettis Academy first award, even after the committee had visited Hampton Sidney, Fisk, Tuskeegee and other noted negro schools.

The high point of the banquet will be the address of Dr. John W. Davis of New York. Dr. Davis is known to many of the members and his sparkling wit and brilliant intellect always satisfies the most exacting audiences. This will close the formal part of the day following which there will be dancing in the ball room.

On Saturday morning, April 30, in the assembly room the final session will be held at which, in addition to the reports and election of officers, Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, will address the convention on, "The Promotion of Cotton Textile Products." At this session committee reports will be heard and other association business transacted, including the election of officers for the new year. This session will conclude the convention.

*Running throughout the entire week of April 25-29, the other major textile convention event of the month will be the Knitting Arts Exhibition at Commercial Museum, Philadelphia. This, and the concomitant meetings of the National Association of Hosiery Manufacturers and the Underwear Institute, are announced in the Knitting Section of this issue, on page 135.*

*Other impending events are the annual conventions of the Cotton Manufacturers Association of Georgia, at Sea Island, Ga., May 19-20, and the S. C. Cotton Manufacturers, at High Hampton, N. C., June 3.*

# Uses of Stainless Steel on Textile Equipment

By George W. Hinkle
Republic Steel Corporation

ON THE SURFACE, a parallel between naval armament and textile production equipment appears far-fetched; however, a similarity does exist. Following the engagement of the two iron-clad ships, the "Monitor" and "Merrimac" during the War Between the States, the obsolescence of the "all-wooden" vessel was conceded by all the naval powers. The result was the redesigning and reconstruction of naval warships. The same condition, while probably not so vital to national welfare, exists in the dyeing and wet-processing equipment of the textile industry. The "wooden vessel" or wooden dye tub, as related to this industry, is just as obsolescent today as the old wooden warships of yesterday. It is impossible to conceive a wooden ship engaged with the modern all-steel battleship; the same odds exist today between two competitive plants, one equipped with modern metal dye and bleach equipment, and the other still retaining the old wooden dye boxes and tubs.

Photos, courtesy Republic Steel Corp.

**Stainless steel is used for the pumps, valves, piping, mixing tanks and kier in this package dyeing machine . . . . . .**

In the past, the wooden tub was the most fool-proof equipment available, as the older metals used for this work were seriously handicapped by the acid and bleach solutions handled. They not only corroded away, but had a serious tendency to react with the various baths to contaminate, or, in some cases, to ruin entirely the operation for which they were intended. For this reason the wooden tub which was relatively inert to these reactions still retained its supremacy regardless of its other deficiencies. These deficiencies may be enumerated as: "splintering," resulting in damaged fabrics and increased inspection costs; segregation of machines for particular colors; scheduling of dying production so that increasingly lighter or darker shades be produced; costly and time-consuming boil-outs between dyeing operations. "Boil-outs" require additional chemicals, water and steam. Also, the fact that the wood absorbs dyestuff and bleach solutions results in higher chemical concentrations for any particular color or bleaching operation in wooden tub as compared to its metal counterpart. Summing up these deficiencies of the wooden tub, they—in a period of a year—represent considerable cost in additional chemicals, steam and water, plus the factor of lower production rates with higher inspection, rejections and re-runs of material for salvage.

Obviously, the operator was and is aware of these "black marks" against wooden equipment and—as previously mentioned—attempted to overcome this by lining or building these machines and tubs from metals. This experience in some cases has been sad as the metals, while more or less resisting the corrosive action of the dye or bleach bath, did affect the color or cause the bleach bath to become unstable, resulting in staining and "tendering" or over-bleaching.

The commercial production of "stainless steel" alloys in the form of sheets, bars, plates, tubing and castings, offering a balanced chemistry satisfactory for welding, has produced a metal for this type of service that overcomes the objections mentioned.

## What Is "Stainless Steel"?

It would be well at this time to state that "stainless steel" refers to a group of alloys of approximately 50 different types. Each alloy has its own particular reason for existence and when a reference to "stainless steel" is made for any particular application, it necessarily requires a type specification and not the general classification "stainless steel." There are only two, or possibly three, satisfactory types of stainless steels for textile processing equipment.

Let us consider why stainless steel is corrosion-resistant, so that an intelligent consideration of its application can be possible. ("Corrosion-resistant steels" instead of "stainless steel" is really far better

terminology.) The stainless steel alloys are alloys of iron containing majorly large percentages of chromium, nickel and other elements calculated to yield certain physical or chemical-resistance properties.

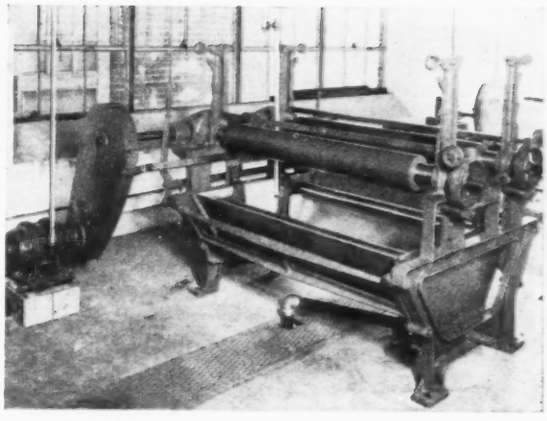
Chromium imparts to the alloy its prime corrosion-resistance properties. A group of straight chromium iron alloys is produced today to meet certain requirements. Another group of alloys exists which contains both chromium and nickel. The nickel addition confers physical properties, such as greater strength and ductility, and increases the corrosion-resistance developed by the chromium-producing alloys which lend themselves well to modern fabrication for industrial processing equipment. This is the group of alloys which is being used in the textile industry today; the well-known 18-8 alloys.

Where greater corrosion-resistance to acids is required than is obtainable with the standard chromium-nickel alloys, two to four per cent molybdenum is added to these alloys. This alloy, known as 18-8-S-Mo, is today the stainless steel alloy that is most resistant to reducing acids and their salt solutions. The corrosion-resistance of these alloys is attributed to the formation of a chromium oxide film on the surface which confers passivity to the metal in a large field of applications. This oxide film is entirely resistant to oxidizing acids and their salts. However, strong solutions of highly reducing acids, such as hydrochloric and sulphuric acids, have a tendency to break down this film and corrosion may proceed very rapidly. Fortunately, in textile dyeing, bleaching and finishing, strong concentrations of these acids are not handled in the processing bath. Solutions of these acids as encountered in developing baths, acid and acid chrome dye baths, are not of sufficient concentration to cause breakdown of this film. In the developing bath where hydrochloric or sulphuric acid is added to sodium nitrite, the resulting nitrous acid formed has no effect on stainless and may, in fact, be beneficial by increasing the strength of the oxide film. In the acid and acid chrome baths the 18-8-S-Mo analysis has proven entirely satisfactory over a period of years when sulphuric, hydrochloric, acetic or formic acids are used at boiling temperature.

Dyers are well informed on the fact that various metals react with different dyes resulting in off-shade effects. Stainless steels, both the 18-8-S type and the 18-8-S-Mo, do not have this effect on colors. This has been proven by several years of service in dye tanks, and by laboratory tests both in textile schools and in the laboratories of dyestuff manufacturers. This applies to dyestuffs used on cotton, silk, rayon and wool, whether they be directs, vats, sulphurs, developed, acid, acid chrome or Celanese colors.

A definite advantage of stainless steel is the fact that it cleans readily, merely washing out with a hose, and the machine is ready for subsequent dyeing or other operations with no fear of contamination by previous colors.

Recently elaborate tests have been conducted by textile schools and bleaching machinery manufacturers on the effect of the stainless steel alloys on the rate of decomposition of peroxide bleach baths. The reports are very favorable and the tests indicate that

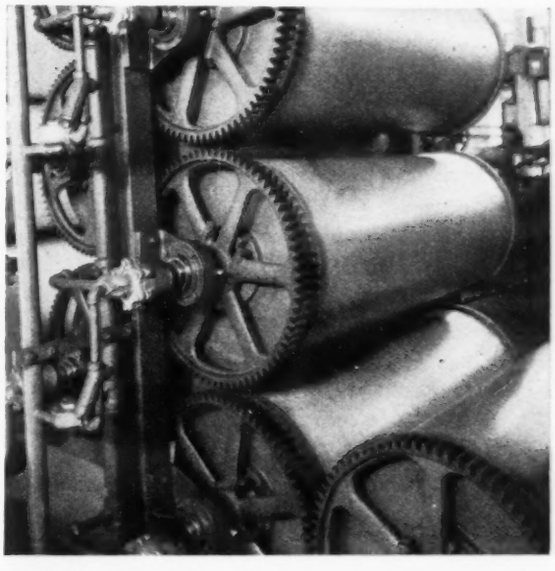


Linings and rolls in this dye jig at Auburn textile school are of stainless steel . . . . . .

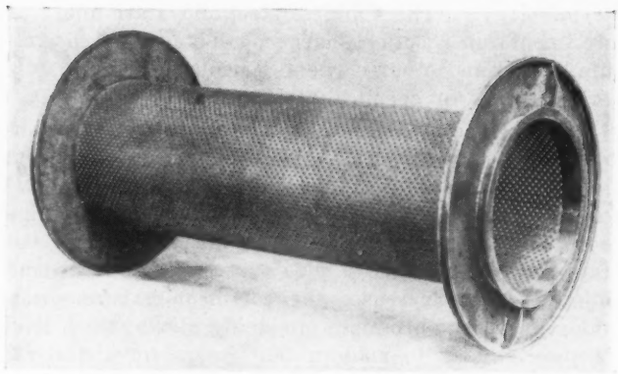
peroxide bleaching is exceptionally practical in stainless steel equipment. In fact, the leading manufacturers are recommending that bleaching be done in stainless steel equipment. Similar tests have indicated the same reaction with hypochlorite bleaches. The metal has little or no effect on the stability of these baths and is entirely resistant to corrosion from these baths during the period of bleach. Standing baths of hypochlorite are not recommended in stainless steel equipment. Also, the 18-8-S-Mo is suggested for chlorine bleaching, while the 18-8-S type is satisfactory for peroxide baths. Since rusting does not occur, the hazard of staining and spotty or over-bleaching is not encountered.

### A Stainless Steel Kier

Several companies manufacturing kiers and pres sure dye equipment are supplying equipment for pressure belaching with both peroxides and hypochlorites with gratifying results. At present a small stainless steel kier manufactured by a leading kier manufacturer in this country is circulating through a num-



The cylinders on these Butterworth dry cans at the new finishing plant at Trion are of stainless steel



At left, a silk steaming bobbin, which exposed to live steam almost continuously, is proof against rust and corrosion. At right, a dyebeam used for dyeing cotton yarn in warp form. Both pieces of equipment are made of stainless steel . . . .

ber of bleacheries as a test or pilot installation. The object is to demonstrate practically to the bleacher that stainless steel kiers are economical for kier construction where scouring, rinsing, bleaching, souring and antichloring can be a sequence of operations in the same kier without possible damaging of goods. This will also eliminate considerable handling and possible damage by handling of goods being processed, plus the general cleaning and resurfacing of the old type "boiler plate" kier.

Within the last few years all the equipment manufacturers have become stainless-steel-minded and a large percentage of this new equipment is of stainless steel construction, indicating that textile operators are in turn realizing the advantages to themselves of these splendid alloys for their own benefits.

Stainless steel alloys are used not only where chemical corrosion-resistance from industrial processes is required, but also in kitchen, restaurant and cafeteria equipment where cleanliness and freedom from metallic contamination are requisites for tasty and healthy foods. This metal in the form of polished sheets is being fabricated into sinks, steam tables, cooking utensils, serving trays, coffee urns and miscellaneous equipment. The hard bright surface does not tarnish and always presents a clean appearance, resulting in an appetizing and cheerful atmosphere. Many industrial plants, schools, hospitals, hotels and restaurants have standardized on stainless equipment in their kitchens and cafeterias.

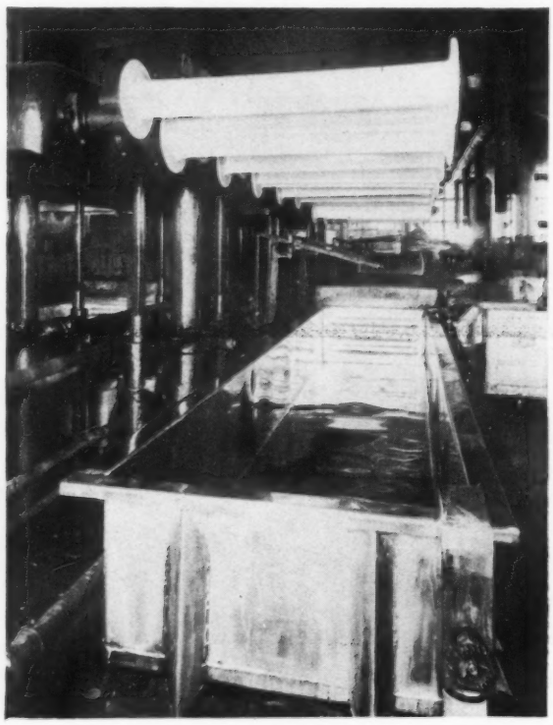
The following are the types of stainless steel used in textile equipment:

| | C | Mn | Si | Cr | Ni | Mo |
|---|---|---|---|---|---|---|
| 18-8 | .08/.20 | .60 | .75 | 17.0/19.0 | 7/9.5 | |
| 18-8-S | .08 Max. | .60 | .75 | 17.0/19.0 | 7/9.5 | |
| 18-8-S-Mo | .10 Max. | 1.50 | .75 | 16.0/19.0 | 14 Max. | 2-4% |

**Physical Properties**

| | Yield | Ultimate | Elong. 2" | Coef. Thermal Exp. of 0-1000° F. | Coef. Thermal Conductivity |
|---|---|---|---|---|---|
| 18-8 | 35/40,000 | 80/90,000 | 55/60 | .0000101 | 150 |
| 18-8-S | 35/40,000 | 80/90,000 | 60/70 | .0000101 | 150 |
| 18-8-S-Mo | 35/55,000 | 80/90,000 | 60/70 | .0000097 | 147 |

Below, a stainless steel dye tank in operation at a large Massachusetts thread mill . . . . .



The 18-8-S type is used for cotton dye baths, whether direct, vats, sulphurs or developed and diazotised, also for peroxide bleach solutions. Where acid or acid chrome colors are to be encountered or chlorine bleaching, 18-8-S-Mo is suggested. As mentioned previously, the molybdenum addition is assurance of dependable service where sulphuric, acetic and formic acids are employed. For this reason it is always advisable to specify 18-8-S-Mo. Although cotton colors may only be used at present, it is possible that production or expansion may require wool processing in the future. Thus, while 18-8-S may be satisfactory today, product variation or new developments in dyeing procedure may require the additional resistance of the 18-8-S-Mo alloy tomorrow.

The 18-8 type has the same corrosion-resistance as the 18-8-S, but it is not suitable for welding where acid corrosion-resistance is encountered. This alloy, however, can be used where welding is not required, in such applications as table tops or riveted construction, for instance.

◆◆

MANY COTTON MILLS are requiring employees to wear goggles when they are blowing lint off of the machines with compressed air. Those that have adopted this plan have materially decreased the number of eye injuries. Other plants are furnishing the card strippers with respirators to protect employees from the dust which is caused by this operation.

# MODERN MILL LIGHTING—Tailored to Fit Plant Needs

—By—
Hoke B. Jordan

THE IDEAL lighting system, equally desirable in every textile mill, is of the same elusive family as the ideal loom or ideal strength and evenness of yarn. That is, "it all depends . . ."

True, we have been coming closer to agreement on certain basic "seeing standards" for carding and roving, spinning, cloth inspection and the like—standards shown to justify themselves in improved productive efficiency and the well-being of employees. The report on textile mill lighting recently published (March, 1937) by the Illuminating Engineering Society establishes a starting point for these fundamental visual needs. Yet no set of specifications for lighting units, lamp spacing lay-outs, or even for foot-candle levels, can lead to a practical and justifiable lighting system unless it be "tailored" to meet specific plant needs and operating conditions.

In recent months, several well-known southern mills have turned to lighting modernization as a production aid which would not only increase operating efficiency, but also benefit the employees by eliminating the nervous tension associated with eye fatigue.

In the textile field, the principal seeing tasks require a light source which furnishes a high illumination level with controlled shadows and a maximum of detail-revealing clarity. Weaving, inspection and shading of colored fabrics present an additional problem of color discrimination, as this work must be done under a light source which provides illumination simulating daylight as nearly as possible.

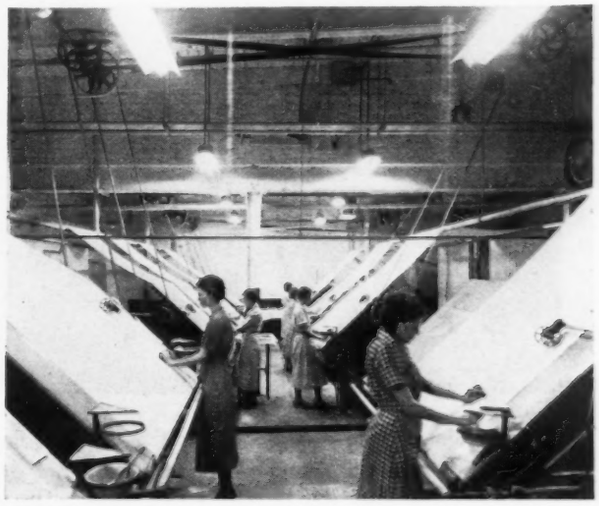
## Recent textile installations of mercury vapor and combination units . . . .

The long-tube mercury vapor lamp has found wide application in the textile industry in the problems to be met in lighting of looms, in which a major problem is to provide a light which shows up each end clearly, and at the same time penetrates in and around the warp to light the harness and other parts of the loom mechanism without confusing shadows. Directional control of shadows, providing contrast along each thread, but at the same time giving excellent visibility down within the loom, has been found to be most effectively secured with a longitudinal light source, mounted at right angles to the direction of the ends. The light source in these installations is a 33 or 50-inch mercury vapor tube below an enameled reflector.

Incidentally, a modernized series of this type unit has recently been introduced, operating in a true horizontal position, rather than the slight angle at which it was formerly mounted. Operating at 350 watts, with a bare-lamp efficiency of 19.4 lumens per watt, the new 50-inch light source supplies the same light output which previously required 450 watts. The 33-inch light source operates at 280 watts, with an efficiency of 17.1 lumens per watt, in contrast to a previous 350 watts.

Where color recognition is a factor, the new combination "skylight" units have recently been adopted at a number of plants. These units provide a cool, color-corrected light by combining mercury vapor

Directional control of shadows to bring out every thread on winders at Valdese (N. C.) Mfg. Co. Long light source mercury lamps over winders and aisles . . . . . .



Inspection department at Springs Cotton Mills, Fort Mill, S. C. Mercury lighting is utilized in checking material for weaving imperfections, oil and dirt spots . . . . . .

light with incandescent light above an angular channel of diffusing glass. In such a combination, the blue-green effect characteristic of mercury vapor lamps alone is balanced by the red and yellow in which incandescent light is rich, furnishing a pleasing, sight-saving daylight effect, without the loss of efficiency which occurs when blue-glass bulbs or filters are used.

In plants where current economy is an important factor, bulb-type mercury lamps have also been applied to weave rooms and large machine areas. These lamps, rated at 250 watts and 400 watts, have an operating life rating of 2,000 hours, and are said to greatly increase the light output per watt of electricity.

While each of these types of lighting has well-defined advantages for certain types of textile operations, practically every plant has special conditions or operations which require the recommendations of lighting specialists if the best seeing conditions are to be economically attained. Only when the installation is "tailored to the job" by someone thoroughly familiar with the seeing tasks of every textile operation can the lighting really by said to take full advantage of modern light sources and light engineering. A description of several specific applications demonstrates how "tailored" lighting has been used to achieve this end.

The Pepperton Cotton Mills, Jackson, Ga., manufacture cotton and cotton-rayon "dobby fancies" and damask for the converting trade. Because of the great variety of intricate patterns produced here, the loom patterns are changed often. As a result, weaving in particular becomes doubly difficult, for operators must be "on their toes" at all times in order to be sure that defective patterns do not slip by them unnoticed.

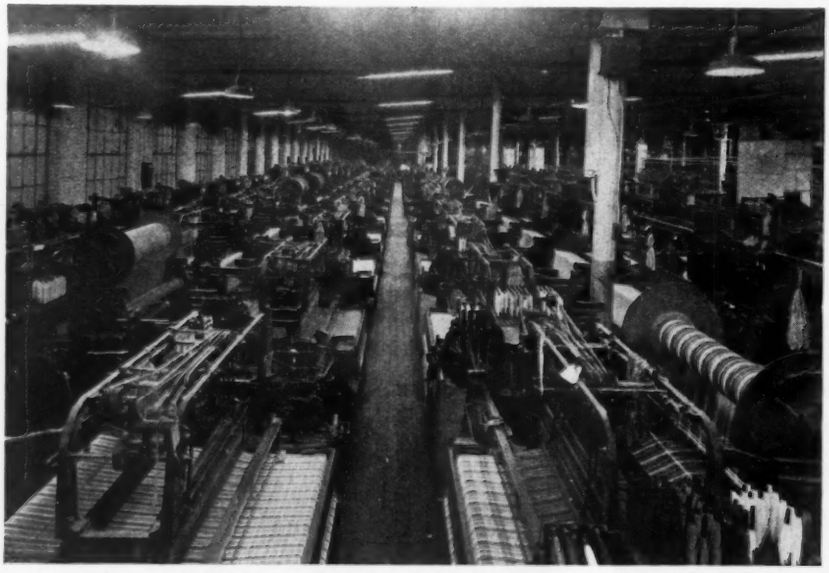
Recognizing the great need for good lighting, the Pepperton company installed a complete system of mercury vapor lights in 1933. Approximately 65,000 square feet of floor space is thoroughly lighted by this method with a soft, glareless illumination.

Particular applications of mercury vapor lighting in the Pepperton plant are for the dobby looms, the Jacquard looms, slashers, warping, winding, spinning, roving, carding and inspection. At this plant, mercury vapor lamps have been used not only for fine seeing tasks, but also their use has been extended throughout the plant.

The dobby looms, making fancy weave damasks, must be watched carefully for defects in cloth, defects in patterns, and broken ends. Weavers inspecting the cloth under the high illumination level furnished by the "tailored" lighting system find relief from the eye-fatigue resulting from inadequate light.

The partition-like sections formed by the pattern paper used in the Jacquard looms make it extremely difficult for the ordinary light source to furnish complete illumination throughout the length of the pattern, and on all sides of the loom. The complicated patterns require close watching, and there are necessarily more interruptions to continuous production in this kind of loom than in one producing white goods. In order to meet the requirements for adequate lighting in this department, a special installation has been made consisting of Cooper-Hewitt reflectors and tubes suspended from spring hangers at a 45-degree angle, mounted approximately 7 feet above the floor, under the footboards.

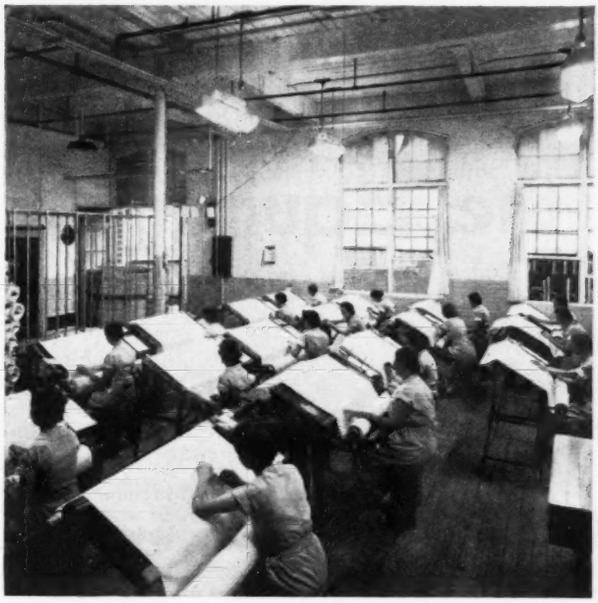
The slashers, should they be operating imperfectly, can cause a great deal of trouble when the warp is being made. As the yarn runs through the comb, the operators must have enough light to see if it is running true. At Pepperton, the slashers are lighted by mercury lamps over the comb, mounted about 12 feet from the floor. This illumination is not only sufficient for inspection of the warp, but also makes it easy to thread the selvage under the hood when necessary.



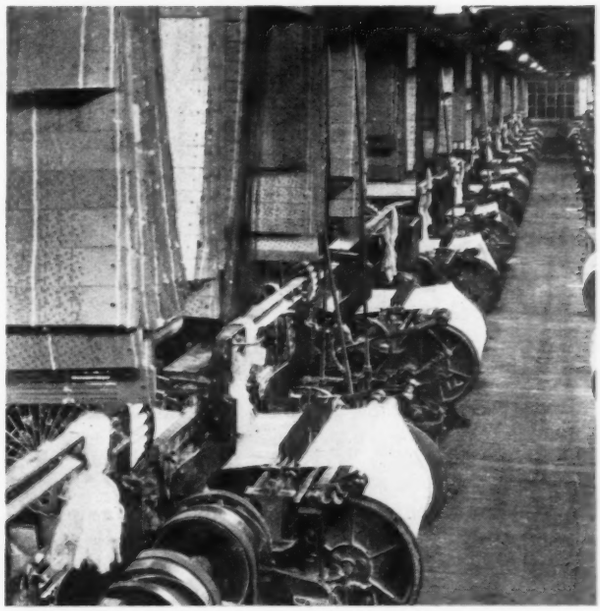
An unusual lighting arrangement in the weave room of one of the country's largest cotton mills, combining mercury vapor and incandescent lamps. Formerly the area was lighted with 200-watt incandescent lamps. When the mill was changed over to colored work, 50-inch mercury vapor lamps were added on 16-foot centers down the alleys to supplement the incandescents—to provide an increased level of detail-revealing light . . . .

For final inspection of the cloths manufactured, "skylight" units are used, by which colors are seen as they appear in bright daylight. These "skylight" lamps are a combination of a straight mercury vapor tube together with four 150-watt incandescent lamps above an angular channel of diffusing glass. At an illumination level in excess of 20 foot-candles, a pleasant daylight effect is obtained, a result of the balanced blue-green color characteristics of mercury vapor lamps with the reds and yellows of incandescent light.

In Georgia, at one of the largest cotton mills in the country, a varied line of ginghams, fancy seersuckers, high quality



Inspecting fine cotton-rayon and spun rayon fabrics under "skylight" units which combine a 275-watt mercury vapor tube with four, 150-watt incandescent lamps. These units are spaced on 12x16 foot centers. Illumination level exceeds 30 foot-candles.



On these Jacquard looms at Pepperton Cotton Mills, Jackson, Ga., mercury lamps are suspended from spring hangers at a 45-degree angle, approximately 7 feet above the floor, hanging from the footboards, spaced about 9 feet apart . . .

colored shirtings and dress goods is made. About five years ago, a carefully planned incandescent system of lighting was installed at this plant. An arrangement of 200-watt incandescent lamps, spaced on 8-foot centers, in weave alleys, was used to provide general illumination. Originally producing principally white and grey goods, this plant has subsequently entered the colored goods field, and a bigger and bigger proportion of its output has been composed of fancy weaves in many different colors. In double beam work, there are now as many as eight shades in the warp and four shades in the filling, of many patterns. To meet the new requirements of color discrimination, mercury lamps have been used by the company to supplement the original lighting over the weave alleys. The units in use are 50-inch mercury vapor lamps, spaced on 16-foot centers along the weave alleys. The lamps are mounted at a height of 12 feet and the incandescent lamps at a height of 9½ feet above the floor.

At the Springs Cotton Mills, Fort Mill, S. C., a recent lighting installation has been made to meet a specific requirement in the inspection department. Their production of high-grade wide sheeting to meet United States Government specifications, backing greys for silk printing and wide goods made to the pyroxylin coating trade specifications requires rigid inspection. The detail-revealing nature of the mercury vapor units has been successfully utilized at this mill in checking materials for weaving imperfections and oil and dirt spots.

Inspection and shading present a difficult seeing problem in the manufacture of fine cotton rayon and spun rayon fabrics.

A prominent South Carolina mill on these fabrics has recently installed color-corrected "skylight" units in its inspection and shading department, in order to obtain the benefits of the daylight effect furnished. By use of these new lighting facilities, color matching and inspection of materials are accomplished so that customers may inspect the finished rayons under bright daylight without detecting off shades.

In this mill, the combination units are spaced on 12x16 ft. centers, furnishing an illumination level in excess of 30 foot-candles. The tiniest of imperfections are quickly seen during inspection, and the soft, diffused light eliminates eye-fatigue, even toward the end of an eight-hour shift.

Lighting of the new high-speed slashers has been accomplished at several textile mills by use of eight or more mercury vapor lamps over and around each slasher. The spacings and mounting heights are tailored to meet the requirements of the machines and the plants at which they are used. In every case, however, lighting standards require illumination levels up to 50 foot-candles at those points where critical seeing tasks are involved.

Suggested lay-outs for various departments of textile mills have been compiled by lighting engineers. The spacings must necessarily be flexible, depending on a study of each problem. Colored materials, for instance, may require as much as twice the illumination level required for white materials.

Special hand operations such as drawing-in will, in particular, always be special applications, requiring careful consideration of the particular factors involved in each plant. For these applications adequate lighting may be obtained only when experience and familiarity with every phase of the problem are brought to bear on the case. One who buys lighting without taking advantage of this accumulated knowledge risks a totally unnecessary compromise with productive efficiency, operating economy and the personal well-being of employees.

# MODERN MACHINE PRINTING— A Description of the Equipment

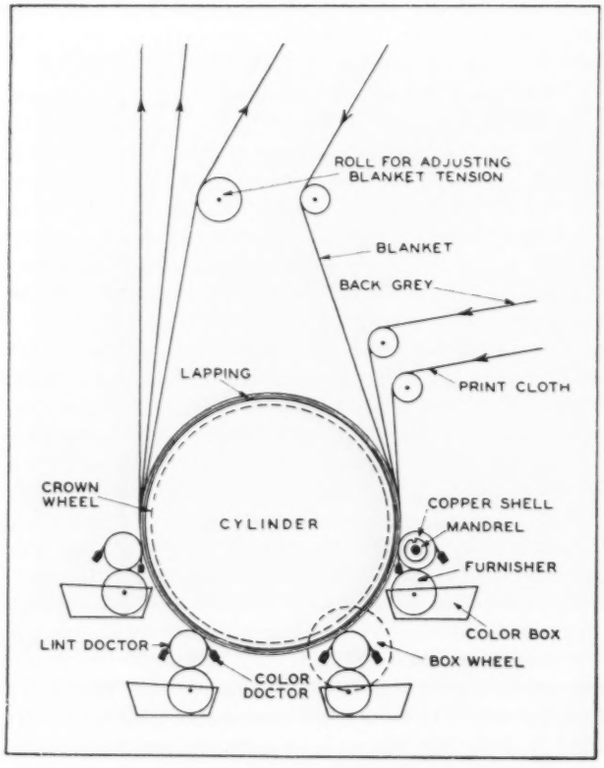
## (Article 2)

By C. Norris Rabold

Chief Chemist, Union Bleachery, Greenville, S. C.

THE ADVANTAGES of machine printing over the hand methods are so obvious that they scarcely need mentioning. The fact that machine printing is continuous, rather than intermittent, results in the production of a very much greater yardage of printed cloth per day than could be obtained by any of the other methods. Also, intricate designs in as high as 16 different colors can be produced in one single operation. Such designs produced by hand would require a considerable amount of time and labor, making the cost of the finished goods so high that the ordinary purchaser could not afford them.

The duties of the printer have been greatly changed, for he no longer performs the actual operations of printing himself but now sees that the print machine is functioning properly, observes the character of the work produced and makes the numerous mechanical adjustments necessary to keep the machine turning out goods of high quality.




Cross-section sketch of printing machine

The essential principles of machine printing have changed little over a long period of years, except for numerous mechanical refinements of the machine, or its accessory parts, which have been adopted to render the operation of the machine more efficient or more economical.

### A Description of the Printing Machine

A description of a printing machine may be as follows:

There is a cast iron cylinder from 18 inches to eight feet in diameter, depending on the number of colors the machine is designed to print; this cylinder is mounted in bearings and set in two very heavy cast iron frames so as to permit it to turn freely. Around this are placed the hollow, copper shells with the design to be printed engraved one color on each, and each mounted on a steel shaft called a "mandrel", also set in bearings. By means of a series of screw jacks on either bearing, these shells are forced against the free-turning cast iron cylinder with considerable pressure. Below the engraved copper roller is mounted another roller called the "furnisher" roll. This may be a plain wooden cylinder around which a number of laps of cloth have been placed, or it may be covered with brushes. This roller is partially immersed in a shallow trough known as the "color box", which is filled with the suitably thickened color; its upper surface is in contact with the engraved copper roller. Both of these rollers are approximately five inches in diameter and the furnisher roll is driven by means of a gear meshed with another fitted on the mandrel bearing the printing shell.

### How the Printing Machine Operates

The printing operation is carried on by driving the engraved copper rollers through a large gear wheel, known as the "crown wheel", mounted on the side of the print machine. The teeth of the crown wheel mesh into smaller gears mounted on the end of the mandrels of the copper rollers, called the "box wheels". As the rollers turn, their pressure against the cylinder causes it to turn, and the cloth to be printed is passed in the nip between the two. It is obvious that if the two metal surfaces were in contact with each other then there would not be sufficient "cushion" to permit the print cloth to take up color, so the cast iron cylinder is covered with several thicknesses of a thick, springy fabric, known as the "lapping". On top of the lapping, and revolving around the central cylinder is an endless "blanket", also made of a thick, heavy fabric, which tends to increase the cushion or spring, though it is more tightly woven and less resilient than the lapping. This is not lapped

around the cylinder but passes over guide rolls some distance above the print machine. Between the blanket and the cloth to be printed, travels another cloth of plain weave and somewhat wider than the print cloth, known as the "back grey". This cloth runs continuously the same as does the cloth to be printed, and its purpose is to absorb the excess color forced through the print cloth or deposited at the selvage, thus preventing this color from soiling the blanket.

### The "Color Doctor" and "Lint Doctor"

When the print machine is in operation, the furnisher roll picks up the color from the color box and transfers it to the engraved copper roll which in turn presses against the print cloth at the point of juncture between itself and the iron cylinder. In order that only those parts of the roll which have been engraved are allowed to transfer the color to the print cloth, a sharp-edged blade made of finely tempered steel and ground to a razor edge rests on the back of the engraved copper roller and scrapes off all of the color transferred to it, except that which remains in the depressions caused by the engraving. This blade is known as a "doctor blade" or "color doctor". The color in the engraving is picked up by the print cloth as it is forced down into these depressions by the pressure exerted at the nip. On the other side of the copper roller with its edge pointing against its revolution, is another blade usually made of brass and with rather a blunt edge, known as the "lint doctor". Its purpose, as its name implies, is to catch the loose filaments and fibers of cotton which have become detached from the surface of the print cloth and prevent them from sticking to the copper roller, as otherwise they would remain on its surface and get under the color doctor, raising it slightly at that point and causing streaks or smears of color to appear on the cloth.

Print machines range from a single color to as high as 16 colors. A multi-color machine differs only from a single color machine in that the central iron cylinder must of necessity be larger than that of a single color, and for each color to be printed, there is mounted around this cylinder a unit as described, consisting of a copper shell, furnisher roll, color box and the two doctor blades.

Print machines are fitted with many ingenious mechanical devices to insure the proper register of the pattern in clean, sharp-cut impressions on the cloth. Where more than one roller is employed, as in a multi-color design, it is necessary to keep the machine in "fit", or in other words, to make sure that all the rollers are so placed and are so turning as to have their engraving fall in exact accordance with the pattern.

### Getting and Keeping the Machine in "Fit"

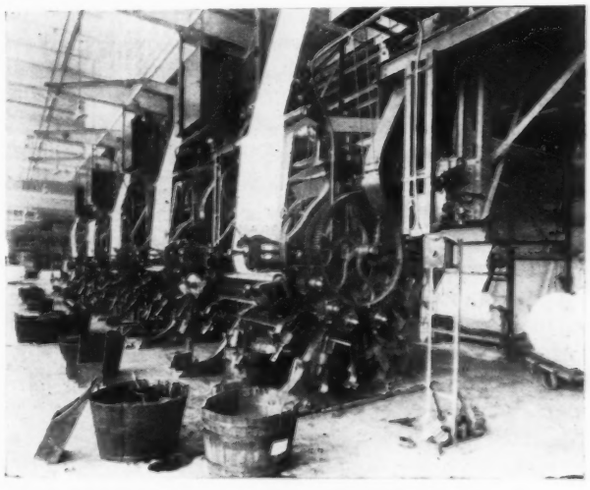
Both ends of the mandrel are mounted in bearings which can be pressed against the cylinder independently of each other so that the pressure on both sides can be equalized, for if this pressure were not even, one side of the cloth would be printed heavier than the other. It is necessary that the copper rollers be mounted so that they are perfectly in parallel, both

MACHINE PRINTING, which accounts for over 90 per cent of the printed textiles in this country, is taken up in this second article by Mr. Rabold. The first installment, in the March issue, presented a general introduction to textile printing and reviewed some of the earlier and specialized forms of printing fabrics.

The present article describes a printing machine, tells how it operates and describes its various parts . . . . . .

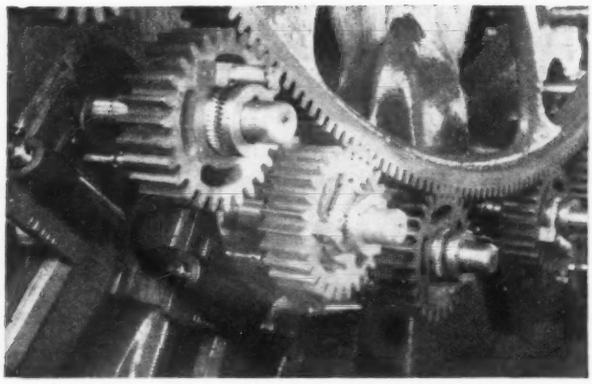
with the central cylinder, and, where more than one color is being printed, with each other. If they were not perfectly parallel with the central cylinder, one side of the roller would be traveling a little ahead and the other side a little behind, thus causing the color to be smeared out of the engraving, with a resultant blur. Also, if the shells were not perfectly parallel with each other, the roll or rollers out of line would not fall in their proper place in the design and would print ahead on one side of the cloth and behind on the other.

Again, it is necessary to provide an adjustment so that the shells may be moved from side to side in the machine, otherwise a roller printing out of fit could not be adjusted. The box wheel is used to keep the pattern in fit for forward or backward movements. This is the driving gear mounted on the end of the mandrel, and is very ingeniously contrived so that while the machine is either running or stopped, the printer, by means of his key, can move the roll either ahead or back without causing it to lose speed, except at the moment of adjustment. Thus, if he finds one roller printing slightly on top of the part of pattern placed on the cloth by another roller, he can set the offending roller back so that it is once more in fit and falls in its proper place. The same is true if the roller has worked itself out of fit and is printing behind. The side to side adjustment, as well as the equalizing of pressure from one side to the other may also be



Photos, courtesy Textile Finishing Machinery Co.

Line of printing machines in well-known southern plant



Close-up of star gear, fitting gears and nips

made while the machine is in operation.

The printer must also keep the blanket under even tension from side to side, otherwise it shows a tendency to run off one side of the cylinder and if tight on one side and slack on the other, causes a different impression of the pattern to register from side to side. By means of an overhead roll, over which the blanket passes, the printer can adjust its tension from side to side, and also longitudinally, in such a manner as to keep it functioning properly.

It is the printer's task, when putting a new pattern in a machine, to set it up so as to have the rollers all printing as nearly as possible in their proper place and while the machine is running, to make the necessary adjustments from time to time to insure that none of the rollers gets out of "fit" with the others.

Care of the doctor blades is another important task for the printer. As before stated, color doctors are made of tempered steel and may range in thickness from 1/16- to 1/32-inch. The blade is about two to three inches wide and its bottom edges are clamped between two heavy pieces of steel. They are usually several inches longer on each side than the copper shell, and the holder for the blade is mounted in bearings on either side of the machine while the working edge of the blade rests against the engraved roll. The pressure of this blade against the roll may be varied by means of weights. Color doctors are worked by means of an eccentric cam and toggle arrangement so that they do not remain pressing against the copper roll in a stationary position. This arrangement imparts a sideways or "traverse" motion, of about two inches, which prevents the blade from resting on the same part of the roll all the time, as this would cause rough edges or excessive wear at one particular point and would give rise to streaks or improper removal of color from the surface of the engraved shell.

The weight of the blade, type of edge, pressure, etc., to be used in conjunction with various types and depths of engraving, is dependent largely on the printer's skill and judgment. For this, there are no hard and fast rules, except that the working edge of the blade must be perfectly smooth and sharp, free from any nicks or burrs, and also perfectly straight. The same considerations apply, to lesser extent, to the lint doctor; its edge should be smooth and free from rough projections. Depending upon the type of work to be performed, the lint doctor, in some cases, is dispensed with entirely.

### How the Machine is Driven

The print machine of today is driven by an electric motor and has synchronized with it, so that they are driven at the same rate of speed, two sets of dry cans. Occasionally dry cans are driven by separate motors which are synchronized with the driving motor of the print machine. These are hollow cylinders with cast iron ends and the heating surface made of copper and are filled with low pressure steam. As the print cloth leaves the print machine, it passes over one of the sets of cans, is dried and dropped into a box. The back grey, upon leaving the print machine, passes over the other set, is dried and wound onto a wooden shell.

### The Duplex Machine—Printing Both Sides of the Cloth

Though there are various modifications of the standard type of printing machine in existence, they are not commonly used. One modification is the duplex printing machine, which is really two multi-color units set up and driven together by the same power unit. The purpose of this machine is to print both the back and face of the cloth. The cloth passes around the first cylinder, is printed on one side, and then around the second cylinder, where the reverse side is printed. When the design is such that an exact match between back and face is necessary, once the rollers of each of the two units are in "fit", the one unit can be brought in "fit" with the other by adjusting its crown wheel.

Another way to print both sides of the cloth and one which is used largely in fine all-over single color effects where an exact back and face match is not necessary, is to print on the back grey before it comes in contact with the print cloth. Then the back grey and the print cloth are brought in contact in a nip made by a plain non-engraved roller and the central cylinder, where the back of the print cloth picks up the deposits of color from the back grey. The two cloths then proceed together and the face of the cloth is printed in the regular way.

Today there are several companies who are printing two strands of cloth at the same time on a single machine. This has been brought about by a desire to get increased production off the unit already installed, e.g., if a company has an eight-color printing machine but has orders only for patterns calling for two or three colors in the combination, it is obvious that to print this on an eight-color machine, a number of the nips must stand idle, so therefore, these companies have so threaded up their eight-color machines that two patterns of two or three colors can be printed simultaneously, thus doubling the production of this unit.

**(The next installment will describe the engraving of the copper rollers, and common printing problems, and then the discussion will become more technical, but not too much so. It will describe the nature of the colors used in printing, how they are prepared; the composition and preparation of the thickeners, and the after-treatment of the goods following the printing operation. Copies of the previous installment will be furnished upon request.—The Editors.)**

# Permanent Finishes and Test Standards Discussed by D-13

COMMITTEE D-13 of the American Society for Testing Materials is the textile industry's recognized agency in the field of investigation of characteristics of manufactured products, the establishment of standards for its products, and the creation and adoption of accepted methods of testing against standards, tolerances, etc. Like most effective activity of this nature, the work of the group is carried on without a great deal of spectacular publicity, and is accomplished by a relatively small group, much smaller than should be the case for an industry so extensive and diversified in its interest in the matters involved. Fibers, yarns, fabrics, finishes and yarn and fabric treatment are all covered in the committee's activities. Its tentative and final standards on test methods, specifications, etc., are generally accepted as authoritative; its membership is an effective, influential group of important technicians. More textile mills should become actively interested in its activities.

### Work of the Sub-Committees

The March meeting of the committee was held at the Raleigh Hotel, Washington, D. C., on March 9, 10 and 11. Most of the work of the organization is done in sub-committees assigned to specific tasks, and these constituted an important phase of the convention, but there were several open general sessions as well. An instance of the group's activities is in the work being done by a new sub-committee on rayon staple fiber and spun rayon, which at Washington explored the field of analytical procedures, sampling techniques, methods of tests for determining the structure and properties of various rayon staples and spun rayon yarns. The sub-committee on cotton yarns and threads, of which R. H. Adams, of Callaway Mills, is chairman, covered terminology, testing methods on heavy-plied yarn, and the subject of regain in testing. The recommendation is made that this be increased from the present standard of 7 per cent to 7½ per cent.

K. H. Barnard, chief chemist of Pacific Mills, Lawrence, Mass., spoke to the entire group on the subject of "permanent finishes" for textiles (*). He reviewed the many various materials, including resins, etc., available for this purpose, but emphasized that the term "permanent" is entirely relative, since there is no truly permanent finish. He referred to the definition of a committee of the American Association of Textile Chemists and Colorists, as to "permanent finishes", declaring these to be finishes which show "no appreciable change in hand or appearance after repeated laundering, if cotton, or repeated dry cleaning, if rayon."

### Barnard Discusses Permanent Finishes

Mr. Barnard pointed out that due to the character of the materials used and the processing involved in applying permanent finishes, certain special equipment is necessary. Speaking of permanent finishes from the sales and economic phase, Mr. Barnard said in part:

"All good things in this world have a price, and from the mill standpoint, one of our greatest difficulties is convincing the consumer that a superior and permanent finish is worth its higher cost. To those of us who consider it worthwhile to have a slate roof over our heads instead of ordinary shingles because of its permanence, or to those who prefer copper and brass water pipes to the ordinary steel, again on account of their permanence, it ought not to be difficult to sell a finish which is also permanent compared with the regular ones so universally used.

"The added cost is due to two things—first, the materials themselves cost from two to 10 times as much as starch, and, second, the capital charge for equipment and operating is increased. You can get permanent finishes, a great variety of them, if you are willing to pay for them."

The consumer point of view on permanent finishes was presented to the group by Ephraim Freedman, director of the bureau of standards of R. H. Macy & Co., who strongly felt that the term "permanent finishes" is ill-advised and recommended a less absolute term like "crease-resistant", "fire-proof", "stain-proof", etc. He presented a helpful list of natural questions concerning these new finishes that arise in the mind of the merchandiser and consumer.

Miss Nanette Growdy, of Montgomery Ward & Co., Chicago, was a speaker at the final session of the committee. She discussed practical methods of testing consmer goods, pointing out the differences in test methods at the manufacturing plant and those used for consumer purposes. She emphasized the need for better testing methods, and of translating standards and tolerances in simpler terms for the better understanding of the consumer. Ruth O'Brien, of the Bureau of Home Economics, Department of Agriculture, Washington, submitted to the committee recommendations of her sub-committee A-6 on household and garment fabrics with respect to sheetings, Turkish toweling, and single-ply cotton broadcloth.

The next meeting of the committee will be in June at Atlantic City, followed by one in October in New York, and a third in March 1939 in Providence. H. J. Ball, of the Lowell (Mass.) Textile Institute, is chairman of Committee D-13, and W. H. Whitcomb, Providence, R. I., is secretary.

*COTTON has in hand two excellent practical articles by J. Andrew Clark covering permanent finishes and their application in a thorough manner. They review the development of these finishes, and describe latest plant methods, procedure, formulae, etc., in each case. These articles will be published in early issues of this magazine.—THE EDITORS.

# "Ten Years of Cotton Textiles"

THE SEVENTH annual survey of the Association of Cotton Textile Merchants of New York, presented in the accompanying chart, "Ten Years of Cotton Textiles", presents a complete and interesting statistical picture of the trends in that industry during the past decade. W. Ray Bell, president of the Association, provides some interesting interpretations of the information, and from his analysis the following pertinent comments are abstracted:

Activity of the whole industry in 1937 was 4.16 per cent greater than in 1936, despite over 12 per cent decline in spindle hour operations during the last half of 1938 compared with the last half of 1936. A new production record for the year, 8,991,302,000 square yards, was established. The peak of market demand was reached in the first quarter of the year, to climax the momentum under way in the Fall of 1936. Nearly all divisions had a record volume of forward sales and a dearth of mill stocks. By midsummer, inventory accumulation was apparent, coincident with a severe decline in raw cotton prices due to the largest crop in history. Subsequent price cuts failed to attract much new business. Aggravated by the slump in general economic conditions, the normal fall buying season became instead one of steady contraction. For the first time since 1933 the fourth quarter of the year saw an adjustment of production. During this quarter mill operations were reduced to about 25 per cent under the corresponding period of 1936 and 28 per cent below activity in the first quarter of 1937.

**Trade Inventories Now Stinted.** Hand-to-mouth production has continued into 1938. A decline in January 1938 of 33 per cent from the previous January emphasizes the lowest activity for any January in 15 years. This unseasonal corrective to the supply situation has already begun to exert its restorative influence upon market confidence. By contrast with the primary market inaction, public consumption of cotton products has been well maintained. Stock reserves in distributive channels are being drained without adequate replenishment. This is particularly applicable to the retail area where fears of reduced spending power foster exaggerated caution. It is not a new phenomenon in this industry for trade inventories to be starved when the risks of ownership are negligible and gorged when prices and profit margins are at a maximum. Should normal commitments of the trade be unduly deferred, the chances of a violent upturn in the second or third quarter will be greatly increased, since current quotations average between 28 and 35 per cent under those of a year ago.

**New Machinery for Old.** There was a net loss in spindles in place, during 1937, of 995,718 spindles. The figure of 772,724 spindles representing new installations, additions and replacements, is the largest amount of new spinning equipment produced in this country for a great many years. The total modernized equipment since 1927 now amounts to ap-

## TEN YEARS OF COTTON TEXTILES

Data assembled by The Association of Cotton Textile Merchants of New York from Bureau of The Census reports and information obtained through the courtesy of machinery manufacturers. Cloth production for the non-census or even years and for 1937 has been estimated to correspond to spindle hour activity during the preceding census years.

| | 1928 | 1929 | 1930 | 1931 | 1932 | 1933 | 1934 | 1935 | 1936 | 1937 | 1938 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **EQUIPMENT** | | | | | | | | | | | |
| Spindles in place at beginning of year | 36,465,976 | 35,267,086 | 34,541,486 | 33,608,494 | 32,326,526 | 31,442,174 | 30,938,340 | 30,889,484 | 29,253,444 | 27,700,194 | 26,704,476 |
| Increase or decrease from preceding year | −898,754 | −1,198,890 | −725,600 | −932,992 | −1,281,968 | −884,352 | −503,834 | −48,856 | −1,636,040 | −1,553,250 | −995,718 |
| New installation, additions and replacements | 255,912 | 320,784 | 251,936 | 205,068 | 143,908 | 348,568 | 529,840 | 214,874 | 469,316 | 772,724 | |
| **OPERATION** | | | | | | | | | | | |
| Spindles active at any time during year ending July 31st | 33,569,792 | 32,417,036 | 31,245,078 | 28,979,646 | 27,271,938 | 26,894,860 | 27,742,462 | 26,700,946 | 24,664,428 | 25,419,110 | |
| Spindles idle during same period | 2,896,184 | 2,850,050 | 3,296,408 | 4,628,848 | 5,054,588 | 4,547,314 | 3,195,878 | 4,188,538 | 4,589,016 | 2,281,084 | |
| Average number of active spindles based on twelve monthly reports | 29,961,648 | 30,408,548 | 27,269,470 | 25,674,107 | 23,250,757 | 24,873,270 | 25,119,435 | 23,421,150 | 23,373,147 | 24,079,936 | |
| Intermittent spindles (being the difference between average active spindles and those active at some time during year) | 3,608,144 | 2,008,488 | 3,975,608 | 3,305,539 | 4,021,181 | 2,021,590 | 2,623,027 | 3,279,796 | 1,291,281 | 1,339,174 | |
| Percentage relation of average active spindles to spindles in place | 82.16% | 86.22% | 78.95% | 76.39% | 71.92% | 79.11% | 81.19% | 75.82% | 79.9% | 86.93% | |
| Spindle hours run | 92,728,880,678 | 99,899,724,476 | 76,702,655,168 | 77,793,298,853 | 70,218,347,911 | 86,580,232,828 | 75,711,412,882 | 76,017,361,934 | 91,773,252,676 | 95,591,131,816 | |
| Hours run per average active spindle | 3,095 | 3,285 | 2,813 | 3,030 | 3,020 | 3,481 | 3,014 | 3,246 | 3,926 | 3,970 | |
| **MARKET** | | | | | | | | | | | |
| Production in square yards | 7,846,440,000 | 8,398,616,000 | 6,448,392,000 | 6,955,391,000 | 6,278,222,000 | 7,866,040,000 | 6,878,579,000 | 7,150,246,000 | 8,632,192,000 | 8,991,302,000 | |
| Exports in square yards | 546,847,000 | 564,444,000 | 416,285,000 | 366,959,000 | 375,446,000 | 302,042,000 | 226,306,000 | 186,565,000 | 200,501,000 | 236,251,000 | |
| Imports in square yards | 61,295,000 | 61,185,000 | 35,517,000 | 34,732,000 | 29,436,000 | 41,348,000 | 41,533,000 | 63,674,000 | 114,195,000 | 147,320,000 | |
| Available for domestic consumption | 7,360,888,000 | 7,895,357,000 | 6,067,624,000 | 6,623,164,000 | 5,932,212,000 | 7,605,346,000 | 6,693,806,000 | 7,027,355,000 | 8,545,886,000 | 8,902,371,000 | |
| Population at July 1st | 119,798,000 | 121,526,000 | 123,091,000 | 124,113,000 | 124,974,000 | 125,770,000 | 126,626,000 | 127,521,000 | 128,429,000 | 129,257,000 | |
| Available for per capita consumption in square yards | 61.44 | 64.97 | 49.29 | 53.36 | 47.47 | 60.47 | 52.86 | 55.11 | 66.54 | 68.87 | |

proximately 4,000,000 spindles, which tallies with the losses from dismantling during the past three years. 1937 saw less idle equipment than any year since 1924. Active spindles ranged from 24,728,000 in April to 22,238,000 in December. The average for the year was slightly over 24,000,000, an increase of 700,000 over the 1936 average; this slight increase suggests that the present effective industry is stabilized at a capacity of not more than 24,000,000 to 24,500,000 spindles.

**High Operation and Cotton Consumption.** Operation of these active spindles went to a new all-time high average of 3,970 hours per year. Assuming normal two-shift, 80-hour production for 51 weeks, the percentage ratio is over 97 per cent. The high rate of activity accounted for the largest year's consumption of raw cotton in history—7,425,000 bales against 7,094,000 in 1936.

**Exports and Imports Up.** Export demand, although increased by 18 per cent over 1936, absorbed but a minor part—2.7 per cent—of total yardage production. It is still 300,000,000 yards below the average exports of the 1920s. Imports increased about 30 per cent, largely from Japan, which furnished over 106,000,000 square yards; this, however, was considerably less than had been expected under the quota arrangements which provided for a maximum of 155,000,000 square yards during 1937.

The textile reader will find much to study in the chart. Mr. Bell concludes his analysis of trends and conditions with the following pertinent observation:

"From the contrasting distributive experiences of these two years (1936 and 1937), it is clear that the rise and fall of trade inventories plays a major role in determining the extent of primary market demand which, in turn, must guide productive operations. It is doubtful that the varying volume of these stocks in distributive channels has an appreciable influence on public consumption from year to year, especially as the sensitive price structure of the industry quickly adjusts itself to economic change, to preserve balance with the public purse. Trade activity, on the contrary, is usually expressed in extreme movements of alternate accumulation and liquidation of inventory. Whether a change in the current emphasis on liquidity will come early or later in the year now depends chiefly on general economic influences outside the industry. Should there be any favorable developments, the market would probably prove quickly responsive."

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## Avondale's Advertising Gets National Recognition

The series of 52 advertisements of Avondale Mills of Alabama, published in 1937 under the theme of "The Human Side of Industry", received national recognition recently in a certificate of honorable mention awarded by the Jury of Award of the Annual Advertising Awards, originated by the late Edward Bok and carried on for the past three years by *Advertising and Selling*.

These advertisements were prepared under the personal supervision of Donald Comer, chairman of Avondale Mills. Following their serial publication in the *Daily News Record* of New York, the advertisements were reprinted in an anniversary number of The Avondale Sun and given further effective distribution. The recognition was made of the campaign, in which photographs and text emphasized the human side of industry at Avondale, as being one "which contributes most to the advancement of advertising as a social force." One comment on the campaign was that it "reflects the growing social consciousness of business; and also the new trend of business toward speaking its piece open and aboveboard, with paid space, and signature."

More than 10,000 advertisements were submitted in competition for the awards. The winner of the medal in the group of advertisements as a social force was the Bank of New York and Trust Company for a series devoted to a better understanding of business, and the winner of the other honorable mention was E. R. Squibb & Sons, manufacturing chemists, for a series which had for its theme, "See Your Doctor."

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## National Cotton Week

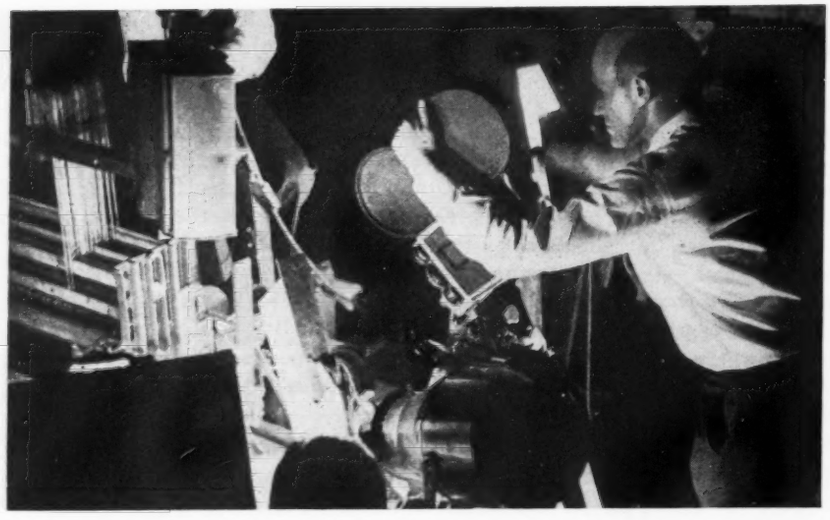
"Buy Cottons Now—Save Money—Speed Recovery" sets an emphatic selling tempo for this year's observance of National Cotton Week, May 30-June 4, and is the basic theme of the official poster for the event, whose sponsor, as in other years, will be The Cotton-Textile Institute. It is felt that this theme particularly suits the economic and social conditions of the times. Cotton not only supports the nation's largest factory industry but from the farm up to the point of distribution of cotton goods in the primary market, it provides the livelihood for practically one out of every ten persons in the country.

The 1938 Cotton Week Poster

New impetus comes to Cotton Week's observance this year from the organization in Atlanta early this month of the Cotton Consumption Council. This group is made up of official representatives of the cotton-growing states and of the cotton farmers and also of representatives of the cotton manufacturers and of the principal chain store groups. The stated purpose of the Council is to increase the domestic consumption of cotton and thus cut into the present crop surplus overhanging the market. It takes as its first immediate objective the doubling this year of the 1937 Cotton Week sales of cotton goods.

In connection with the Cotton-Textile Institute's promotion of National Cotton Week, merchants will be provided with an Idea Book offering an abundance of tested suggestions for coordinating the buying, merchandising and advertising of cottons. Distribution will be made next month of the official full size poster in red, white and blue color scheme. The Institute's promotional plans will also include, among other activities, a comprehensive information service for the guidance and assistance of all retail store participants in Cotton Week.

# "Slow Motion" Photography as an Aid in Studying Movements of the Loom



By Albert Palmer

Research Assistant to the General Manager, Crompton & Knowles Loom Works

Taking movies of a C&K bobbin changing loom. The camera is fitted with a slow motion attachment capable of taking approximately 200 frames per second against a normal operation in projection of 16 frames a second. The result is that a loom which is photographed at a speed of 140 picks per minute shows up on the screen as operating at 12 picks per minute . . . . . .

IN AN ADDRESS BEFORE *the Eastern Division of the Textile Society of Canada in Montreal on January 29, Albert Palmer, research assistant to the general manager of Crompton & Knowles Loom Works, Worcester, Mass., brought out some interesting points concerning the increased output per machine and per operative making the most effective antidote for high costs resulting from possible wage and hour restrictions. Mr. Palmer told of the improvements made in looms over a period of years and made specific recommendations for looms on certain types of fabrics. In line with engineering problems of the loom manufacturer, he told some of the incidents leading up to the solution of these problems. Of particular interest was the use of the slow motion picture. Extracts of Mr. Palmer's address on this subject follow:*

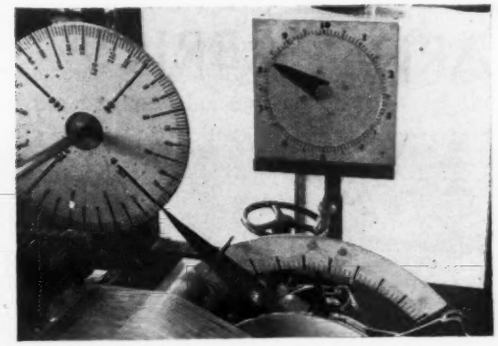
A HASTY OUTLINE of the various new machines should be supplemented with some discussion of the engineering and scientific methods that have been involved in their design. In years past rules of thumb resulting from experience were used to determine the relative proportions of loom mechanisms. Many attempts were made to check these rules by various mechanical and electrical devices. None of these methods tried, however, were very satisfactory, primarily because of the nature of the machinery. Apparatus which depended on physical contact with the shuttle was difficult to use because of the high speed and irregular movement of the shuttle. Stroboscopic equipment was practically useless because of the relatively low frequency with which the shuttle passes a given point in the machine. For these reasons, the decision was reached to take slow motion pictures of a loom in operation. Contrary to popular belief, the camera which takes slow motion pictures is in reality an ultra-speed device which does to motion what the microscope does to minute particles. It enlarges motion so that one may see the details of action which at normal speed are invisible. It magnifies time and coincidentally makes a record which may be examined and studied again and again.

In analyzing motion, it is not uncommon to take 200 pictures per second. This number of pictures must not be confused with the length of the exposure given each picture. It may be very short indeed; for instance, in the case of the pictures of the C & K looms, the exposure was 1/12,000 of a second per picture. This extremely short interval was necessary in order to immobilize the shuttle in each individual picture.

The film "Loom Secrets" was taken at a rate of 188 pictures per second; consequently, when it is shown on a standard projector operating at a rate of 16 pictures per second, it shows the loom running at a speed which is about 12 picks per minute, whereas the actual speed was 133 picks per minute.

The film consists of a series of studies, each one of which was taken for a particular purpose. Although several in number, the objectives concerned primarily the speed of the shuttle and the variations in warp tension which exist as the loom runs. In order to obtain the data upon which to base the computation for these studies, various instruments were placed upon a loom as is indicated in the pictures which accompany this discussion.

The chief value of pictures such as these lies in their ability to give a complete record of all the readings which are necessary for the observer to obtain the information for his engineering computations. Obviously, it would be impossible to read simultaneously, with the loom running, the time recording device, the drum or disc showing the position of the crank shaft, and the scale showing the



Dials used in taking of C&K slow-motion pictures. Some are used to show degrees of rotation or oscillation. Others to record time between stages of operation . . . . . .

travel of the shuttle across the lay, to say nothing of the indicator which is attached to the harnesses and to the box motion. However, the picture records simultaneously all these readings. By putting the film in a hand projector and by turning it slowly, one frame at a time, all the instruments can be read at his leisure by the observer. At the same time, he can study the mechanical action of the parts of the loom.

Numerous interesting facts were obtained from these studies. For instance, in the average loom the shuttle loses ⅓ of its velocity in traveling from one selvage to the other. In one of the pictures at the time that the nose of the shuttle is entering the selvage on the drop box side of the loom the shuttle speed is 38.7 feet per second [26.4 miles per hour.] Halfway across the loom it is 32.3 feet per second [22 miles per hour.] Leaving the opposite selvage, it is 25.6 feet per second [17.5 miles per hour.] Such information as this made possible the design of picking shoes which are now used on all the new looms.

The studies on warp tension as yet are not complete. The findings to date, however, are interesting, particularly since they show that the warp tension, when the harnesses are wide open, is almost as great as the tension at the time of beat up in most looms.

Similar engineering studies have been made for various other parts of the loom. In the past two or three years the technique for designing harness cams has been improved greatly. Also, much information has been compiled concerning the different harness motions from the standpoint of the rapidity with which they move the harnesses and the length of time during which they hold the harnesses open for the free passage of the shuttle. In this connection, a considerable amount of work has been carried on with reference to the crank shaft throw for various harness mechanisms. Obviously, warp threads are subject to damage by abrasion, tension, and flexion. The problem is to reduce the sum total of these detrimental influences to a minimum by proportioning properly the movement of the lay to harnesses.

Other mechanisms also have been investigated. One example is the center filling stop motion. The velocity of the feeler wires has been studid in connection with the pressure of the wires upon the filling to minimize the kinking effect on the filling.

# Cotton Consumption Council Formed at Atlanta Meeting

### Murchison, Everett and Robert Stevens to Represent Manufacturers in New Promotion Program . . .

AN ORGANIZATION to effectuate and co-ordinate the activities of interested groups, particularly in the field of distribution, in the greater consumption of cotton products was formed at a meeting held in Atlanta on March 3. The meeting was sponsored by the National Association of Food Chains, the Institute of Distribution, and The Cotton-Textile Institute, in co-operation with the commissioners of agriculture and cotton producers of the southern states. Recognized spokesmen from each group participated in the meeting.

As a result of this meeting an organization known as the Cotton Consumption Conference was formed, with Harry D. Wilson, commissioner of agriculture of Louisiana, as chairman; and Charles K. Everett, of The Cotton-Textile Institute, as secretary. Its purposes, broadly, will be a further, intensive study of the problem of a cotton surplus, the finding of new uses for cotton, and the development of a permanent program designed to solve the cotton problem. In addition to Mr. Everett, cotton manufacturers and merchants are represented on the committee by Dr. C. T. Murchison, president of the Institute, and Robert T. Stevens, president, J. P. Stevens & Co., New York City.

At the Atlanta meeting, the inter-relationship of cotton grower, manufacturer, merchant and distributor in solving the cotton problem was emphasized. It was pointed out that the members of the Institute of Distribution—mail-order, variety and specialty chains—handle over $600,000,000 worth of cotton products sales annually; that the shoe chains alone use, in the form of linings and findings, a total of more than 15,000,000 pounds of cotton annually. Other instances of the closely intertwined interests between cotton growing, manufacturing and distribution were cited. Representatives of other distribution groups, such as the drug chains, food chains, etc., were present and indicated great interest in the projected purpose of the conference. The results of previous co-ordinated efforts aided by chain-store distributors were outlined.

With National Cotton Week coming shortly—May 30 to June 4—it is felt that the organized effort stimulated at the Atlanta conference will attain immediate momentum that will produce effective results. At the meeting, Dr. Murchison emphasized that the great supply of cotton now available to the world is a challenge to greater consumption and to the recovery movement, declaring that the solution of the cotton problem will contribute greatly to American prosperity. Emphasizing the need for expanding the existing uses of cotton and broadening the range of consumers' needs, he pointed out that the American textile industry is able to operate at only 60 per cent of its capacity.

# COMBINATION YARN FABRICS

## By Mike Maury

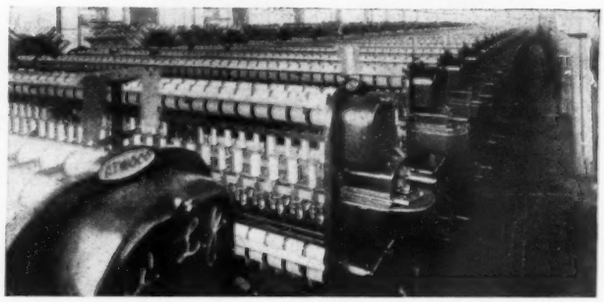
## Novelties of Rayon Crepe—(Part 2)

THIS is the second and concluding installment of an article on rayon weaving, dealing especially with the running of combination yarn fabrics, how the combination yarns are run, and their preparation for weaving. The first installment appeared on page 89 of the February issue and covered constructions . . . . . .

### Combining the Yarns

IN COMBINING the two yarns the first point to be considered is that of tension. With a satisfactfactory arrangement the acetate yarn can be run from cones and the tension can be made more or less as desired, but because the crepe yarn is run from spools, about the best method of controlling the tension is by using light or heavy spools according to the amount of tension wanted. This set-up is not completely satisfactory because the tension becomes less on the crepe yarn as the spool gets smaller and lighter, but until some method of running this yarn from cones is perfected, this is the nearest approach to a controlled tension. The amount of tension to be used, of course, varies with the counts of the two yarns that are to be plied. In each instance, however, the acetate or soft yarn should receive considerably more tension than the creped yarn. This is due to the fact that the two yarns do not have the same amount of elasticity, and therefore do not break under the same amount of strain. In order to get a satisfactory combination yarn, the crepe and acetate used in the plied yarn must break at approximately the same strain; this is accomplished by placing additional tension on the acetate yarn, which causes the acetate to run into the combined yarn tighter than the crepe, which should cause the two yarns to break at approximately the same strength. The tension also plays a big part in the twisting of this yarn. If the yarn is not plied with the correct tension on the plying machines, it is likely to give trouble in the spinning.*

As has already been mentioned knots are very objectionable in these combination yarns, and for this reason if an end breaks down it should not be tied up but should be fastened to the spool with adhesive paper. In this way it is not necessary to make so many small pieces, but at the same time the spools are marked by the stickers so that they will not be run into the regular warps.



Courtesy, Atwood Machine Co.

**A southern installation of rayon twisters**

Most combination yarns that contain 12 or more turns of ply twist can be made quicker by putting in about 2½ turns on the plying frames (twisters) and stepping this up to the required turns on the spinning frames. Yarns that contain only a very small amount of turns in the ply cannot be run very successfully on the spinning frames because it is necessary to run them at high speed; this causes excessive breaks and also causes kinks in the yarn. Of course, the speed of the spinning frame on any combination yarn is slower than is used on regular creped yarns.

When the yarn is placed on the spinning frames all of the spools are used, that is the spools that do not have any loose ends, and also the spools on which there have been breaks during the plying operation; however, when an end comes down on the spinning frame, the spinning spool is doffed immediately and another spool is used to receive the balance of the yarn. These pieces are set aside and used for filling; or if the yarn is not used in filling they can be rewound and the ends tied up. They are then used for warps, but the manufacturer knows that the warp contains knots and can be guided accordingly if any trouble is experienced with the goods.

After spinning or plying the yarn should be steamed before it is ready for warping, because in plying twist on twist the crepe regains some of its life and is very likely to cause kinking in the other processes. Yarn that is used for filling should also be steamed after it is put on quills. It is a known fact that when crepe yarn is wound under tension it receives some stretch and becomes lively again. It is wise not to steam the combination yarns too long before they are processed, as the steaming tends to loosen the yarn on quills or spools, and if it is allowed to stand too long before it is run, the yarn is likely to become so loose that it will tangle and will not run off smoothly. However, it is not wise to run the yarn too soon after steaming as the yarn should be allowed to condition a short time.

Many mills warp these combination yarns on silk or horizontal warpers. The writer is not acquainted with this method and will not attempt to discuss any

*The spinning and plying operation of rayon crepes is carried out a little differently from the spinning and plying of cotton yarns. When two rayon yarns are to be combined, they are first run on the twister and enough twist is inserted to hold them together properly. Then they are taken to the spinning frame and this first twist is increased to the desired number of turns. This is done simply to increase production as the spinning frame operates much faster than the twisting or doubling or plying frame. Cotton yarns are drafted and the twist inserted at the same operation. If they are to be combined, then the twisting operation follows the spinning.

problems connected with it. The yarn is run very successfully from the regular V-type, spool warp creels or mills, and by reducing the speed, the yarn can be run from the spinning spool. However, if the speed is not reduced, the heavy spinning spool may give trouble because its weight allows it to run quite free after it is once started. As the yarn must be beamed or dry slashed in order to get it on the loom beam, it is very important that no ends are lost in the warping. If an end does get by, the operator should run a small piece of paper in the beam so that the end can be run in during the beaming. This is especially important when the warp is made by arranging the ends one end regular twist and one end reverse twist. The drop wires on the warp mills should be watched carefully and should be replaced as soon as they show signs of wear as any rough edge will cut the yarn and make a streak in the finished cloth. When spools are creeled in the warp mill, every spool should be of the same type as any material difference in the weight of the spools will show in the cloth after finishing, though it cannot be seen in the unfinished cloth.

The yarn can be put on loom beams either on a crepe beamer or a regular slasher. The beamer does not have any arrangement for sizing the warp yarn, and simply winds the yarn directly from the section beams to the loom beam. When the yarn is run through a regular slasher it is run exactly the same as any set of warps, except that it does not pass under the size roll and does not receive any size. The cylinders, of course, are not heated. Warps run through the slasher will, in most instances, run better in the loom that those run on a regular beamer because the yarn is kept straighter and is run with more even tension and a better controlled tension. When the beam pattern is one end regular twist and one end reverse twist it should be remembered that every end must be in the warp at all times; therefore, if an end breaks back and it is necessary to run an end in from a spool, every effort should be made to get the correct tension on that end. Running spools on the looms is extremely dangerous to the cloth and will almost always have a streak. Some mills have gone so far as to throw out an end of the opposite twist at the beamer when an end is lost; then when the loose end comes up, both ends are tied in the warp again. These beams are then handled in the weave room by re-reeding the warp when an end runs out, and when loose ends come up they are run over the loom unless too many of them are in the warp; in which case, the warp would be re-reeled again in order to put them back again. This of course can only be done on plain woven fabrics.

When a beam is fitted it should be wrapped with heavy paper, the heads oiled, and then placed in a steaming cabinet and steamed slightly. This will make the yarn much easier to handle in the drawing, and also will help a great deal in mounting the warp on the loom. The beam heads should be cleaned thoroughly after the steaming, being sure to remove all of the oil, which is used in order to keep the heads from rusting.

As these yarns are not sized before weaving, the harness, drop wires, and reeds, should be inspected very carefully in order to keep them in the best condition possible. Some reed manufacturers are making reeds with a chromium plating which should prove satisfactory for these cloths. The crepe yarn being hard and rough, will have a tendency to wear the dents on each end of the reed because the ends rub rather hard due to the large amount of contraction in the cloth. When the dents become worn they become rough and cause the soft yarns used in the combination to be frayed. The dents in the reed should not be sprung in any way by the use of oversize reed knives or reed hooks as this will cause reed marks in a cloth that might otherwise be perfect.

When the warp is mounted on the loom special care should be taken to examine the shuttle thoroughly, being sure to eliminate any worn tension eyes, as, if the goods are to be filled with combination filling, a worn tension eye will cut the yarn and cause skin-backs.

### Now the Loom Is Ready to Start

After all loom inspections are made and the warp is mounted and ready to run, each harness should be raised individually, having only one harness up at a time and a thorough inspection made to be sure that no ends of regular or reverse twist are out of place. The loom is then started and after the cloth has woven far enough, a one-quarter yard swatch should be taken off the loom and examined carefully to be sure that everything is in order before proceeding. After this, a swatch is taken at each cut mark and given a thorough examination to be sure that the loom continues to run correctly. In addition to this, each loom should be stopped each day and the harness raised one at a time as mentioned above to be sure that the regular and reverse twist ends are not crossed at any time during the weaving operation.

Ends that come up loose on the beam should never be replaced by running spools on the loom as it is almost impossible to get the correct tension, and unless this tension can be secured the end is almost sure to mark the finished cloth. Loose ends can best be replaced by crossing ends from the sides but these ends cannot be crossed too far, and if an end runs out in the center of the warp, it is best to cross three or four ends so that the end is eventually taken from the selvage, but one end is never crossed more than two to five inches. Special care must be taken when rolling up these cloths are they are very easy to crease on the cloth roll and these creases do not come out in the finish, but leave bad dye streaks.

The inspection of the woven cloth is the same as that of any other kind of crepe. Many of the defects common to this type of cloth do not show very clearly until after the cloth is finished; and for this reason, they are difficult cloths to produce satisfactorily. However, it can be done and is being done by a great many mills. These fabrics may continue good for several seasons, and if so we will probably learn many things more about their production. On the other hand, they may give way to some other new type of cloth and the educational process will have to start all over again.

**(This concludes the two-part article by Mr. Maury.)**

*A portion of the 315 who registered at the Georgia meeting March 19. The balcony, not shown here, was also filled.*

# Record Crowd at Georgia Discussion on Carding and Spinning Subjects

MEETING in the Y. M. C. A. of the Georgia School of Technology, Atlanta, the Textile Operating Executives of Georgia held their usual interesting and instructive meeting on Saturday morning, March 19. Carding and spinning were discussed. Visitors were present from neighboring states and took part in the practical discussions, held along the lines of a prepared questionnaire. A. D. Elliott, superintendent, The Trion (Ga.) Co., general chairman of the organization, thanked the mill men for various suggestions submitted by request on improving the meetings. Mr. Elliott explained that the speaker of the occasion, T. M. Forbes, secretary, Cotton Manufacturers Association of Georgia, was unable to attend, having been called from the city. E. R. Lehmann, superintendent, Langdale (Ala.) Mills, a division of the West Point Manufacturing Company, was elected to the executive committee, succeeding Charles K. Cobb, general superintendent, Canton (Ga.) Cotton Mills, whose term expired. George E. Glenn, superintendent, Pepperell Manufacturing Company, Lindale, Ga., led the carding discussion and R. P. Sweeny, superintendent, Exposition Cotton Mills, Atlanta, Ga., led the discussion on spinning. Well over 300 members, associate members, and visitors attended the meeting.

## Carding

The first carding question on the prepared questionnaire was, *Discuss an opening room lay-out which seems to give best results with respect to opening, cleaning, and blending. Give reasons for the use of each machine as well as its location in respect to other machines with which it is used. This is to relate to handling several different types of cotton in separate mixes.* L. J. Duckett, Fulton Bag & Cotton Mills, explained that in his plant 10 bales of cotton are opened at a time and fed into the hopper, some from each bale being taken when making the mix. From the hopper the stock goes to a vertical opener. It is then drawn out of the vertical opener with a fan and is carried through two Centrif-Air machines and then onto the conveyor leading to the line of pickers. This arrangement is used because the hopper can tear the cotton up somewhat for the vertical opener, which will handle the cotton from the bale much better, he said, than the Centrif-Air machines, and for this reason the vertical opener precedes the Centrif-Air machines in the line. Also, the Centrif-Air machines have a better opportunity to clean the stock after it has passed through the vertical opener. At one time there were screens in the vertical opener, but it was found that more cleaning could be secured with grid bars, so these are not used.

George Harris, Fairfax (Ala.) Mill, reported the use of two groups of four feeders, each of which feeds to a vertical, then to a horizontal cleaner; both lines then feed into the same trunk line, which includes a gyrator section.

R. P. Hardeman, The Trion (Ga.) Company, reported that in his mill the stock is fed to a bale breaker by a 12-foot extension apron which is equipped with a Bale-Mixer. It then goes through a tandem hopper to a feeder with the Buckley beater making 700 r.p.m., a vertical opener making 765 r.p.m., and to a Centrif-Air machine making 350 r.p.m. The stock is transferred to the picker room where it is processed with a Gyrator and then placed in the hoppers of the pickers. 10 bales are mixed and 1100 pounds per hour are processed in each of four units. He was asked if the stock were curled and Mr. Elliott replied in the negative, humorously adding that the stock wasn't long enough to curl; 7/8-inch to 1-inch cotton is used. Mr. Elliott had heard that it is better to have the Buckley beater *after* the vertical opener instead of before it, and asked for experiences with this set up. W. H. Floyd, Avondale Mills, Sycamore, Ala., reported running his Buckley beater between the bale breaker and the vertical openers, from which it goes to a horizontal cleaner—then 5 sections of cleaning trunk—and is getting satisfactory work with the arrangement. He uses 15/16-inch to 1-inch stock, opening 20 bales at a time, and runs his Buckley beater 1500 r.p.m., and the horizontal cleaner 450 r.p.m. Mr. Floyd said he takes out 1 3/16 per cent motes in this opening line.

### Changing Production on Pickers

The second question concerned the results, on ends down in the spinning room and breaking strength and cleanig, with materially reduced production of opening and picking equipment. C. L. Hall, Muscogee Manufacturing Company, Columbus, Ga., said, "We find that the slower we run the cotton the cleaner it gets. The cleaner the cotton the less ends down you will have. We process 2400 pounds per hour—this is on 3 lines of one-process pickers and makes 800 pounds per line—and we find the slower the cotton goes the more sensitive is the evener motion and the better the laps. We slow down on the production pulley on

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**Reported by John C. Fonville.**

pickers and on the main shaft on the Bale-Mixer." He also reduced the beats per inch. He had made no test on breaking strength.

R. A. Field, superintendent, Newnan (Ga.) Cotton Mills, had also tried slowing down on the picker and cutting the weight of the laps and running slower beater speeds, and he found that the stock is cleaned better, there is less fly in the card room, about one-half less, but there is no difference in the breaking strength. He later added the total amount of waste is the same. R. P. Sweeny, superintendent, Exposition Cotton Mills, Atlanta, Ga., had cut the production on the picker about 10 per cent and found that it seemed to give a cleaner and evener lap. A. T. McElveen, overseer of carding at Cherokee, said their standard production is 1300 pounds per hour in his picker room, that with this production his yarn break factor is 1674; he experimented by reducing the production to 270 pounds per hour and the break factor rose to 1719, about 2½ per cent better on the slower production. Also, the lap was cleaner. In cutting the production, no speeds on the picker were not reduced. He made no check on the percentage of waste removed.

### Results of Reducing Picker Production

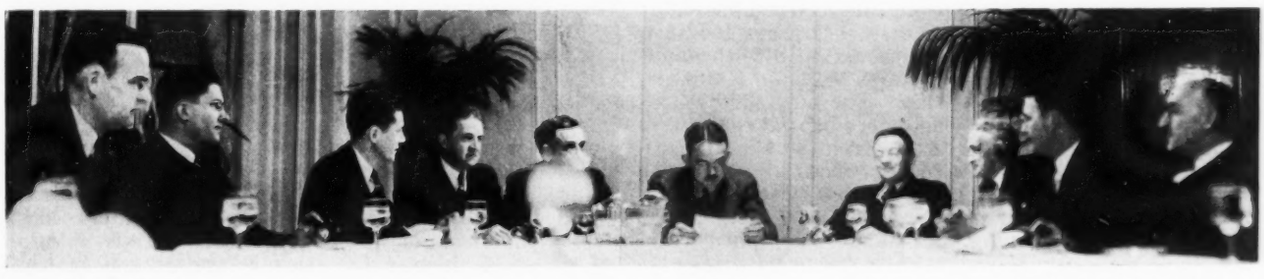
*What is the relative percentage of waste that should be taken out by opening and picking equipment compared with cards? In other words, it is possible to reduce card waste to a minimum by improved opening and picking equipment? How can fly be reduced in the card room?*, was the third carding question. J. A. Bone, Lanett (Ala.) Mill, said that about 7 to 7½ per cent waste should be taken out through cleaning, picking, and carding. Any amount of waste could be removed at the card, he explained, by setting the card to do the desired work. In trying to reduce the lint in the card room, it was brought out that it is better to take the short fibers out on the card. R. S. Steele, superintendent, LaFayette (Ga.) Cotton Mills said, "We try to get everything we can out in our picker. We try to get the best possible cleaning at the picker room to alleviate trouble in the card room. We don't like to get not over 5 per cent waste around the cards. The more waste you get out in the picker the less you get out in the cards. The amount of fly is governed by what you want to do. If you don't want the fly in the stock, you can get it out." Mr. Bone of Lanett said that using oil will prevent some lint. W. R. Beldon, Clark Thread Company, Clarkdale, Ga., said that there is no standard waste percentage removal at the pickers and cards that can be set up. At his plant, on staple cotton, 2 per cent is removed at the pickers and 6 per cent at the cards. "You should get all seed and leaf out in the pickers and leave nothing for the cards to remove except the neps. This of course is not possible, but it should be our aim. As to fly the desirable thing is to take it out at the card with the proper adjustment of the screens." Mr. Beldon added that proper humidification and ventilation will aid in reducing fly.

*What causes card flats to load up? What is the best method of cleaning flats after they have become loaded?*, was the fourth question. V. J. Thompson, superintendent, Rushton Cotton Mills, Griffin, Ga., listed humidity, bad settings on the back plate on cards, grade of cotton, worn-out brush in front, and short wire will affect card flats loading up. For cleaning the loaded flats, he explained that old stripper fillet spiraled in the flats wire would help clean them; them they could be burnished. Mr. Beldon mentioned hooked wire as causing the flats to load up.

### Experiences with Long Draft Roving

The fifth question asked for experiences with long draft roving. John P. Baum, Pepperell Manufacturing Company, Opelika, Ala., does not get as good breaking strength with long draft roving as he did with the conventional type. On 15/16-inch cotton he is using a draft of 8, making 1.00 hank roving from 66-grain sliver; making 1.40 hank roving he is drafting up to 10. A question was asked about running finer rovings, such as 3.50 and 4.00 hank. A. D. Elliott explained that there is a difference between long draft roving and super-draft roving. On the regular long draft roving frames he has gone as high as a draft of 10, but no higher; this is the deadline. Mr. Beldon has some 6-roll long draft frames and reported that the greatest saving is in the operating cost; he said he reduced operating cost by 30 per cent. He went on to explain that it is almost impossible to discuss the question of long draft generally because each mill will have to work out the running of the frames according to local conditions. Allen Jones, superintendent, Muscogee Manufacturing Company, Columbus, Ga., has a few long draft roving frames and is getting a saving in operating cost. He is satisfied with the results and believes long draft roving is a good thing. J. A. Byars, Pepperell Manufacturing Company, Lindale, Ga., said, "We have 12 long draft roving frames making 2.67 hank roving from a 65 grain sliver. Comparing these with regular slubbers and speeders we have had a 50 per cent reduction in operating costs. Our tests have proven that the stock from the long draft frames is equal to or slightly better in breaking strength and evenness than stock from our regular slubbers and speeders. We have found that 8x4-inch frames are best suited for our work."

R. P. Hardeman, of Trion, reported running a 64-grain sliver making 3.50 hank roving using ⅞-inch and 1-inch cotton on the 8x3½-inch super-draft frames. The work runs well in the spinning room and compares favorably with the conventional type in both running in spinning and in breaking strength. On these frames, he said, it is necessary to use a little more twist to make it run well in spinning. A question on the efficiency of the long draft roving frames arose. Several said the efficiency was about the same as on regular draft frames, one reported efficiency of 85 per cent and one 75 per cent. C. L. Hall, Muscogee Mfg. Co., gets 90 per cent efficiency on his 10x5, 96-spindle long draft slubbers when running 1.50 hank



MEN AT WORK—The executive committee of the Georgia association on preceding evening planning for the March 19 meeting. Left to right: George Glenn, Charles Cobb, Harry Purvis, Will Gibson, Allen Jones, Robert Philip, A. D. Elliott, R. S. Steele, Roddy Field, and R. P. Sweeny

roving with a front roll speed of 130 r.p.m. His operators run four of these frames and do all their own work.

When changing over frames from regular draft to long draft, it is often necessary to increase the top roll weights. When this is done, it was reported, either Koroseal or cork rolls are usually used.

### Koroseal on Long Draft Roving

The sixth carding question was, *Give your experience now with Koroseal rolls. Specifically, with these rolls on long draft roving, how is the best way to prevent eyebrows? Discuss other results and problems.* George Harris, Fairfax (Ala.) Mill said, "We like the Koroseal rolls. We have eyebrows but we just pick them off." B. W. Whorton, assistant superintendent, Langdale (Ala.) Mills, said, "We are still playing with Koroseal on roving frames. As to general running, evenness and strength, it is proving satisfactory except in extreme changes in the weather. The biggest objection is eyebrows." D. E. Dunwoody, Canton, has had several years of experience with Koroseal and finds that he does not have to buff the rolls so often as compared with cork. T. J. Boynton, Manchester (Ga.) plant of Callaway Mills, stated that he has bot'

Left, R. P. Sweeny, who led the spinning discussion, and, right, Geo. E. Glenn, who conducted the session on carding . . . . .

white and black Koroseal and gets good results from each. There are, however, less eyebrows on the blac' than on the white. He picks the eyebrows regular' At Muscogee Manufacturing Company, Columbus, Ga., Koroseal rolls have been used for 16 months on long draft roving and drawing and they are still in good condition. Pieces of gum paper are placed on the clearers so that the paper holds the eyebrows until the end of the doff, when they are picked. W. H. Gibson, superintendent, Martha Mills, Thomaston, Ga., is using Koroseal in the roving, drawing, and spinning. He gets good results; Mr. Gibson also reported that within a short time a new device would be brought out and made available to the trade that would prevent eyebrows. The possibility of having such a method brought a murmur of approval from the crowd. W. M. Yow, technical superintendent, Martha Mills, told of running tests on drawing frames having rolls of Koroseal and steel, and cork and steel. The result was that Koroseal proved better than any combination of the other rolls and now all of the drawing feeding to long draft at Martha Mills is equipped with four lines of Koroseal rolls. The clearer waste on Koroseal and cork amounted to the same. The only difference is that on cork the clearer waste goes behind the clearer and on Koroseal it goes to the front and is visible. It is picked off without causing any trouble. Mr. Yow reported that the Koroseal rolls do not flute on weekends. A. S. Thomas, manager, Opelika (Ala.) Mills has his spinning, drawing, and slubbers equipped with Koroseal, but has difficulty when the rolls glaze. It is then necessary to buff them. He contended that the Koroseal has to be buffed more often than cork rolls. A draft of 7½ is being run on his slubbers. Mr. Yow has had no trouble with glazing.

This was the last question on the carding questionnaire, but one man asked for the weight lap being run when a 65-grain card sliver was made from it. Baxter Colbert, The Trion (Ga.) Company, said he makes a 14-ounce lap. Another member makes both 13¼-ounce and 14-ounce laps.

## Discussion on Spinning

After the carding discussion, there was a brief rest period, after which R. P. Sweeny, superintendent, Exposition Cotton Mills, Atlanta, Ga., took the floor to lead the spinning questionnaire discussion.

The first question was *Discuss the different types of spinning tapes from a power-saving standpoint? What results have you had with the new lightweight spinning tape?* Joseph Johnson, Clark Thread Company, Clarkdale, Ga., told of making a test, first with the old tape on the spinning frame, and then replacing it with a new lighter tape on the same frame. The counts were 60s for making thread, using filling wind, 264 spindles per frame, 3-inch gauge, 2-inch ring, 7-inch traverse, gravity spindles, making 8600 r.p.m. without separators. With the new lighter tape there proved to be a 14 per cent saving in power, an increase of 1½ per cent in spindle speed, giving about one per cent increase in production. The yarn when placed on blackboards appeared equal. The lightweight tape is 31/1000-inch thick, it costs about four times the price of regular tape, and does not appear to have as much stretch. He had no figures on comparative life, as he has had the new tape only two months.

A. P. Holt, Muscogee Manufacturing Company, Columbus, Ga., said, "We have found that the new lightweight spinning tape is superior to other tape we have tried as regards power saving. Our mechanical department made a thorough test on the lightweight tape comparing it with the tape we were using and it was found that about 15 per cent of power was saved. Having used the lightweight tape for such a short time, it would be impossible for us to compare the life of it with the heavyweight tape."

Mr. Byars of the Pepperell Manufacturing Company, Lindale, Ga., commented as follows on the new spinning tape:

"We have been comparing a light tape of 50 yards to the pound with a heavier tape of 32.8 yards to the pound. These tapes were tested on 2 warp frames, each making 21s yarn. Spindle speeds, cylinder speeds, and horsepower readings were made simultaneously on each frame. Three sets of indications were taken on each of the four frames, the test being made each time with the ring rail at the bottom of the stroke where the load seemed to be the greatest. These indications were made with the bobbin empty, half full, and full. Our results were a decrease in horsepower from 8.0 to 6.8, a reduction of 15 per cent, an increase of 2 per cent in spindle speed, from 9,036 to 9,217 r.p.m., and an increase of one per cent in cylinder speed, from 1,250 to 1,261, with the light tape. Not considering the difference in life or cost of the tapes, this shows a saving of 44 cents per frame week, $22.20 per frame year, or 9¼ cents per spindle year based on an 80-hour week." The foregoing test was made on 21s warp, 3½-inch gauge, 2-inch ring, 240 spindles per frame, 15/16-inch Middling cotton, and the test was conducted on the same frame when using both heavy and light tapes.

### Power Saving with Lightweight Tape

John R. Federline, Jr., overseer of spinning, Lanett (Ala.) Mills, had made a test using the lightweight spinning tapes as compared with the heavy tapes on 4-roll long draft spinning frames of 240 spindles, 3½-inch gauge, 2¼-inch ring, 1-inch diameter bobbin, warp wind, with a 7½-inch traverse. The cylinder diameter was 8 inches with a spindle whorl of one inch, a full package weighing 5 ounces. The cylinder made 1170 r.p.m., spindles 9000 r.p.m., and the front roll 154 r.p.m. Twist multiple was 4.75, draft 14.00, and counts made 14s. A frame was

outfitted with new regular tapes and the power checked from the beginning of the doff until the finish, requiring 4½ hours. Then these tapes were replaced with the lightweight tapes and the power checked over the length of the doff. The following table gives the results of the test:

| | Regular Tape | Lightweight Tape |
|---|---|---|
| Yards of tape used per frame | 200 | 200 |
| Cost of tape per pound ..... | $ .50 | $2.31 |
| Cost of tape per yard ..... | $ .0135 | $ .033 |
| Cost of tape per frame ..... | $2.60 | $6.60 |
| Power consumed ..... | 29.1 kw hrs | 28.3 kw hrs |
| Power saved per frame per 4½ hours ..... | | .8 kw hrs |
| Spindle speeds without changes other than tape .. | 9026 r.p.m. | 9300 r.p.m. (+274) |

After this test was run, some sample spindles were turned down, taking the crown off the whorl so as to give a flat driving surface of the whorl of the same diameter as the part where the selvage of the tape had been running. On the regular tape the speed of the spindles with the whorls turned down gained 199 r.p.m. and with the lightweight tape the gain was 50 r.p.m.

J. R. Killian of the Georgia Webbing & Tape Company, Atlanta, Ga., exhibited samples of lightweight tape showing how a method of sewing was proving satisfactory. The ends of the tapes were cut at 45 degree angles, overlapped, and then sewed so that no extra thickness of tape produced a rough place. Mr. Beldon uses the spearhead method of cutting and sewing his tapes.

Going back to the tests on the new lightweight tape, another member reported a saving of 9 per cent and an increase in spindle speed of 1½ per cent using the lightweight tape. This was on warp yarn, 264 spindles to the frame, 3¼-inch gauge, with the spindles making 9800 r.p.m. This man uses the straight sewing method. H. M. Jackson, of Pacolet, reported a 1-1½ per cent increase in spindle speed, and a power saving of 10-13 per cent with the lightweight tape. A question was injected asking if the same power saving was secured several days, weeks, or months later as when the tape was first put on the frame. A member contended that he had found a saving of 11 per cent the first day in power and later it was less. No one had had trouble with the new tapes coming off.

## Cleaning Spinning Bolsters

The second spinning question was, *Should spindle bolsters be removed and bases washed out with some cleansing agent occasionally? If so, how?* W. Gaines Huguley, overseer spinning, Eagle & Phenix Mills, said, "We have no systematic way of doing this work, but have occasionally done some of this using kerosene as a cleansing agent. The method has been to withdraw all of the oil with a pump and flush with kerosene and run for several hours, and draw it out and re-fill with fresh oil." He said the condition of the oil removed was very muggy. C. A. Townes, Aragon (Ga.) Mills, made a similar report. Neither observed any especial benefits from so doing.

D. C. Prim, Muscogee Manufacturing Company, Columbus, Ga., said that he does not remove the bolsters and wash the bases out. However, about once a year the spindles are oiled with lard oil which cuts the gum and hard cake. A small amount of lard oil is added to the spindle oil the balance of the time. He has found that the use of kerosene causes the bolsters to wear out. No test had been made on the comparative power consumption when cleaning the bases and when not, but he believes the power consumption is lower when using lard oil because the gum is kept loose. Mr. Beldon advised that it would pay to clean the bolsters with some kind of mineral spirits about every four or five years unless the bolsters were kept oiled properly. One member uses a mixture of half spindle oil and half kerosene about every three months to clean his bolsters. At Pepperell Manufacturing Company, Lindale, Ga., all of the oil is drawn out of the bases with a vacuum pump after the bolsters have been removed once a year, thereby removing the dirty oil which has collected a considerable amount of dirt and lint.

## Cleaning on Long Draft Spinning

The third question was a discussion of method and frequency of cleaning on long draft spinning, and the percentage of time spent by the spinner in cleaning, creeling, and putting up ends. Mr. Byars, reporting for the Pepperell Manufacturing Company, Lindale, Ga., said that the spinners do both spinning and cleaning. Two overhead cleaners are being used on 24 frames and spinners under these cleaners run 10 and 12 sides, compared with 8 sides where there are no overhead cleaners. Tests on the running qualities of the yarn under the cleaners have shown little difference in ends down, breaking strength, and loom stops. Although the amount of cleaning for the spinners per job is about the same, there has been an increase of 25 per cent in the number of sides per spinner where there are overhead cleaners. It is estimated that on Pepperell's job, the spinners' active time is divided 65 per cent for cleaning, 15 per cent for putting up ends, and 20 per cent for creeling. The cleaning schedule is as follows:

ALTON D. ELLIOTT, superintendent, The Trion Co., Trion, Ga., who presided as general chairman of the Textile Operating Executives of Georgia

*First shift*, regular cleaning, pick front rolls, wipe cap bars, brush guides and separators, wipe roving sticks, wipe red rods, wipe tapers, wipe top roving, wipe backs, wipe roll stands, wipe lever screws, clean tops of creels, brush rails and rockers, and clean greenboards and sampsons.

*Monday*, brush clearer boards, pick slip rolls; *Tuesday*, wipe bottom roving, pick under spindles, and clean steel rolls; *Wednesday*, brush clearer boards and pick slip rolls; *Thursday*, wipe bottom roving and pick weights; *Friday* brush clearer boards, pick slip rolls, and clean creels, rods, and under.

For the second shift, the regular cleaning is the same as the first shift except the cleaning of the greenboards and sampsons is omitted. *Monday*, brush ring rails and clean back scavenger rolls; *Tuesday*, pick back rolls and pick stands; *Wednesday*, wipe bottom roving, brush rings rails, and wipe base rails in the back; *Thursday*, pick back rolls and pick roll stands; *Friday* wipe bottom roving, brush ring rails, and wipe behind base rails. Jack Smith, upon being questioned, added that a round wire brush is used to clean inside of the creels and other places are picked with the fingers.

Pepperell's yarn numbers are 20s to 26s filling and 14s to 21s warp, white and colored work.

Muscogee Manufacturing Company, Columbus, Ga., is running both colored and white yarns. The report from this mill, made by J. F. Glass, was as follows:

Cleaning must be even more thorough on long draft than on regular draft, and it has to be done more often due to the increased amount of lint. With the exception of top rolls, our cleaning is done by the spinners in addition to their spinning. The top rolls are cleaned by the roller pickers once every 16 hours with an electric machine. Overhead cleaners help much in reducing the manual cleaning. It practically eliminates cleaning roving creels, wiping out backs, running out the thread guides, and prevents

any accumulation of lint on the ring rails or any part above them. The spinners spend 15 per cent of their active time putting up ends, 17 per cent creeling, 53 per cent cleaning, and 15 per cent walking, etc.

The cleaning operations and frequency are given as follows:

Clean base rail inside with waste once in 80 hours; clean base rail outside with mop 4 times per 8-hour shift; clean thread guide boards, board with clearer cloth bottom, 10 times or more per 8 hours; brush ring rail with narrow brush once per 8-hour shift; clean separators once per 8-hour shift; clean greenboards once per shift; wipe backs with frazzled rag tied round at one end 3 times per 8 hour shift; wipe roll stands once per shift; clean roving creels with roving brush every shift; wipe front scavenger roll just after the frame doffs; wipe back scavenger roll every 80 hours; pick stationary top clearers when necessary (not over 2 hours between times); pick control rolls on long draft once per 8-hour shift; clean steel rolls with round steel roll brush every 80 hours; pick roll stands with hook every 8 hours; pick chokes from under whorls every 80 hours; pick chokes off idlers every 80 hours, pick roll weights every 80 hours; pick revolving top clearers every 80 hours, and clean roving guides with waste every 80 hours.

Mr. Glass reported this schedule covers white and colored work, 8s to 20s warp and 5s to 20s filling.

Mr. Hardeman reported for The Trion (Ga.) Company: On cleaning long draft spinning frames, the rollers are cleaned twice a week. The front rollers are cleaned daily and the roving is cleaned every 8 hours, on top and bottom. Backs are cleaned every 8 hours, sideboards are run through every hour, and rails are wiped off three times every 8 hours. Long draft equipment on some yarn counts has to be taken out and cleaned every three months. On high counts the equipment is cleaned every 6 months. Clearer boards are cleaned every hour on 14s yarn and below, and every two hours on 23s yarn and up. Spinners do their own cleaning. The time spent on spinning, setting in roving, and putting up ends is five hours in 8, and in cleaning, picking rollers, picking clearer boards, running out sides, wiping roving, wiping backs, and wiping off rails, three hours in 8.

S. Wayne Hempstead, Martha Mills, described their system: "We use a portable revolving spindle operated by an air motor for cleaning the cap bars. Our spinning is fully equipped with traveling overhead cleaners. Our spinners do some cleaning, but we have special roll pickers who pick once every 24 hours. All chokes are picked out. We have other girls that clean greenboards and creels once a week. We do not need to clean them as often with the overhead cleaners. Our spinners run out the guides, fan the base rails, clean the scavenger roll sticks, and pick the stands. That is all the cleaning the spinners do. On 23½s yarn our spinners spend 40 per cent of their time repairing breaks, 37 per cent creeling, and 22 per cent cleaning. On 15s yarn these figures are 34 per cent for repairing breaks, 41 per cent for creeling, and 24 per cent for cleaning. This is using 1 1/32-inch and 1¼-inch cotton; double roving is on all spinning. We make 15s yarn from 2.10 hank roving, 23s from 2.48, and 24s from 2.80.

Harry Purvis, Chicopee (Ga.) Manufacturing Corporation, said that he uses overhead cleaners and the spinners do their own cleaning. The following is the schedule for his spinners to clean:

"Run out guides once in 3 hours; brush rails once in 3 hours; pick front clearers once in 6 hours; wipe backs once in 12 hours; pick stands with fingers once in 24 hours; brush ring rails once in 24 hours; brush guide wires once in 24 hours; wipe roll bars and roving rods once in 24 hours; clean roving traverse and hank clocks once in 24 hours; pick weight hooks once in 24 hours; pick 3rd and 4th top rolls once in 48 hours; pick 1st top rolls once in 24 hours; pick small 2nd top rolls once in 48 hours; pick stands with hook once in 72 hours; clean back lap sticks once week; clean dog hangers, steel rolls, etc., once a week; pick middle and back clearers once a week; wipe under creels once week; clean separator blades once a month; pick weights once week; wipe top roving once a week; wipe bottom roving once a week; rub base rails once a weeks; and rub greenboards once a week.

On 30.5s warp and 42s filling Mr. Purvis said that he has 35 ends down per 1000 spindle hours. On 30.5s warp (single roving) the spinner spends 24.7 per cent of the time putting up ends, 11.5 per cent patrolling, 15.1 per cent creeling, and 48.7 per cent cleaning. On 42s filling (single roving) the spinner spends 25.2 per cent of the time putting up ends, 5.5 per cent patrolling, 11.1 per cent creeling, and 58.2 per cent cleaning. On the cap bars and cradles a long small brush is used to clean.

Mr. Whorton said at his plant they try to clean completely once a day. An electrical needle is used to pick the rolls and he finds it quite satisfactory. With the machines stopped, the ring rails and separators are blown off once a day. The spinners do no cleaning.

## Cooling the Spinning Room

The seventh question was, *What is the best method of cooling the spinning room, and if this method were adopted, would it have any effect on the humidity and in what way?* A. S. Thomas, Opelika (Ala.) Mills, gave the following information on this subject:

"The problem we had to face was a spinning room of about 12 feet in height with individual motor driven frames where room temperature was as high as 106 degrees in the summer. With the advice of friends, it was decided to put in three ducts running crossways of the frames and take air from the east side of our plant with propeller type 4-blade fans. The center duct has a fan of about 12,000 feet capacity with a 3-hp motor and the outside two ducts are supplied with fans of 8000 feet capacity and 1½ hp. motors. There are only two frames running lengthwise of the room, the motor drives being between them. All of the ducts are of the same size and by running them in the same direction as the beams, they were placed against the ceiling. The ducts are 46 inches wide and 15 inches deep at the start and taper off as the number of openings increase, the first being 28 inches and the next 13 inches. The openings are 6x9 inches and throw the air downward so that it strikes the floor about 10 to 12 feet from the openings. The air is changed about every 5 minutes. It was necessary to add 6 extra atomizer humidifiers. Two atomizer heads were also placed behind each fan so that the air contains humidity when it is brought into the room. 60 degrees relative humidity is maintained in the room. The air is controlled by a thermostat that operates when the temperature gets up to 90 degrees and cuts it off when it falls below 90 degrees. The temperature of the room was lowered about 10 degrees."

Mr. Thomas estimated the cost of his equipment, for a room of 200,000 cubic feet, to be approximately $1,800.

Mr. Thomas also read a letter from another mill describing a home-made method of cooling the spinning room. The system consists of two fans driven by a 15 hp. motor each. The fan exhausts into a conduit pipe extending nearly to the end of the room. The conduit pipe has 6-inch outlets every 10 feet staggered on either side. Capacity of each fan is 23,000 cubic feet per minute and the two fans cool a length of 850 feet. At the inlet of each fan are installed evaporating heads. Each head evaporates 40 pounds of water per hour, there being one on each fan. The evaporators are run when the fans are going and the combination reduces the temperature from 6 to 8 degrees. This was done without interfering with the humidification, and aside from the increased comfort the spinning runs much better in extremely hot weather. The cooling system is not used in cold weather as the induction of cold air into the warm room so increases the humidity that the work runs poorly.

M. A. Kirkland, U. S. Rubber Products, Inc.,

Hogansville, which has complete central station equipment for the entire mill, said there are 300 small atomizers in the spinning room, maintaining 60 to 65 per cent humidity the year 'round, with a temperature of 87-88 degrees in summer.

Mr. Gibson told of having some recent visitors from Austria who claimed that the spinning rooms in that country were so cool that the help almost has to be ejected from the mill in warm weather. It was also brought out that a change in air volume requires a proportionate change in humidity.

The chairman next took up the fourth question, which was a discussion of creeling, piecing, and eliminating soft places on long draft spinning. As the meeting was running overtime, this question was discussed only briefly. Mr. Hardeman pointed out that if the draft is 16 and one inch of roving is overlapped in creeling, the yarn will be doubled for 16 inches. Bearing this in mind, at his plant the spinners break down the ends when creeling and then put them up again.

### More Weight and More Cushion

The next question was a discussion of changing the top roll cushion and weights after adopting long draft spinning, and the best weight cloth to use on rollers for long draft spinning where chrome calfskin leather is used. A member from the Fulton Bag & Cotton Mills, Atlanta, said that the weights in his plant had been changed from 29 to 34 pounds but there had been no change in cushion. Mr. Glenn had made no change in cushion either. He uses an 18-ounce flannel. The weights have been increased, but the frame came equipped with increased weights and nothing was done about changing the cushion. Allen Jones said his mill is using heavier weights and heavier cushion since the change because the manufacturer suggested doing so.

The last question compared the yarn breaking strength and spinning ends down between long draft roving and 3-process roving. Mr. Hardeman had made a test between super-draft roving and regular draft roving and found no material difference in the breaking strength of the yarn made therefrom or in ends down in the spinning room. This was on ⅞-inch and inch staple cotton using a 27 draft, making 3.50 hank roving from 64-grain sliver, running it into long draft spinning. Mr. Johnson also reported no appreciable difference in the high draft roving systems and the regular roving systems as concerns ends down and breaking strength of the yarn.

After the practical discussions were ended, the names of two men were drawn and given hats as attendance prizes.

# Lighting Recommendations for Textile Mills

In a report presented before the 30th annual convention of illuminating engineers, held in Buffalo, N. Y., during 1936, some interesting recommendations are given in a report entitled "Researches on Industrial Lighting" published by the Illuminating Engineering Society. Investigations in over 2500 industrial plants showed an average illumination level of only 2.85 foot-candles. The average age of all industrial lighting equipment found was 8.7 years and the number of watts per outlet was 121. Sketches throughout the report indicate the recommended lighting lay-outs for the various departments of textile mills manufacturing gray goods and denims. Other illustrations are given in the report that show the advantage of proper placement of the lighting units. The report is written in a clear, understandable manner so that lighting engineers not familiar with the textile processes will get the full meaning, and so that textile men not versed in lighting terms will get the purport of the report. Recommended levels of illumination for a gray goods mill expressed in foot-candles are as follows: Storage, opening, mixing, picking, carding, and drawing from 5 to 10 foot-candles; slubbing, intermediates, roving, and spinning from 10 to 20 foot-candles; spooling from 15 to 30 foot-candles. For warping, at the comb, there is a recommended 15 to 30 foot-candles with 10 foot-candles on the creel and running ends. At the comb on slashing there is also the same recommendation of from 15 to 30 foot-candles, with from 10 to 20 foot-candles on the warp beams. Drawing-in by hand and automatic tying-in require much more light and the recommendation for the former is 100 foot-candles or more lighting at the machine with 10 foot-candles of general illumination, and for the latter from 50 to 100 foot-candles with the same general illumination. For the weaving process, light at the fell of the cloth should be from 40 to 60 foot-candles, for inspecting by hand from 20 to 50 foot-candles, and for the cloth room from 10 to 20 foot-candles.

### What Are Some of the Advantages of Using Alternating Current?

Alternating curernt is best suited for long-distance transmission because it may be easily generated at low to moderately high voltages and can then have the voltage raised to very high values suitable for efficient transmission, and then the voltage can be once more quite readily reduced, by means of a stationary device known as a transformer, to a value suitable for general use. The higher the voltage or pressure, the smaller the wire required to carry a given amount of power, hence the advantage of high-voltage transmission. For example, an alternator may generate power at 2,200 volts. Part of the current through the use of transformers may be supplied at 110 volts for lamps, some at 440 volts for motors, some at 2,200 volts for high-voltage motors, and some may be stepped up to 110,000 volts for transmission to distant points where it is stepped down to any desired voltage before it is used. Such an arrangement is not possible with direct current as transformers can not be used.—*E. M. C. Fairbanks-Morse.*

### Formula for Figuring Reeds

$$\frac{(\text{Sley} - 1) \times .95}{\text{Ends per dent}} = \text{dents per inch in reed.}$$

### Formula for Percentage of Size Added to Yarn

(Yarn delivered plus hard waste) — (yarn fed minus soft waste)

Yarn fed minus soft waste
= per cent of size added to yarn.

# CURRENT TEXTILE TOPICS ....

## Talk of the Month

COTTON MANUFACTURES are a constant dependence of the public and relatively more so perhaps in times of poor business than in periods of prosperity. This does not mean good business for the mills in poor times, however, and the experience of cotton manufacturers through the first quarter of the present calendar year was unsatisfactory. Before this time, it was anticipated, a substantial recovery from the 1937 recession would be in process of realization.

**Spurts vary dull monotony but quarter disappointing**

Instead, the January-March period was a time of dull monotony for the most part. Periodic spurts of considerable volume were followed by a return to inactivity. It was true that finished goods were going into the hands of consumers in steady volume, creating a more favorable statistical position. But general industry was lagging, which deprived the mills of an outlet for goods that is essential to well rounded production.

### Mill Operations Depend on the Consumer

In the long run the consumer demand for cotton goods paves the way for new activity in production and it may be realized any moment that broad covering ahead is essential. The maintenance of purchasing power outside the wage earning class was a potent influence for steady consumption, especially since prices of cotton goods had been drastically readjusted to the new conditions created by the 1937 recession.

But what was taken as a mere recession in recovery has for weeks, because of the prolonged dullness, been characterized widely as a depression. Underlying conditions in industry are such as would, in past recessions, have started new activity by this time. The difficulty of getting government to release business from burdensome taxes and other obstacles to freedom of ordinary initiative has protracted dullness in industry.

Around the middle of March, moreover, this condition was threatening a more serious reduction of consumer purchasing power. Accumulating reports were heard of cuts in earnings of salaried workers. Thus when manufacturers were hoping for a substantial increase of orders for products, with a consequent lift of prices out of unprofitable levels, buyers were facing a new reason for caution in covering ahead and for holding down prices.

Raw cotton has been a complex feature through the first part of the year. The passage of the farm bill created the strongest market for raw cotton late in February for nearly six months. Here was a potential force toward a major movement in cotton goods, with a restoration of profitable prices for manufacturers and return of reasonable working hours for labor. But general business uncertainty checked both raw cotton and goods after an encouraging brief movement.

At the time of writing, the newest angle in raw cotton was the overwhelming vote of farmers in favor of quotas for the coming crop under the farm control bill. This brought the new crop into the situation as a factor, but the results of control will be clear only when the production figures are reported late in the year. A smaller acreage is assured. From the experience of last year, this is no assurance of the size of the crop.

Not for many years has the situation in raw cotton been so fraught with interest. There is more than usual possibility of intensive farming, with acreage reduced. Attention will be focussed on the new mechanical methods, both in the field and at the gin, that suggest epochal changes in the cotton world. Manufacturers will be concerned with the problem of weighing farm control as against these other fundamental conditions as the price-making influences.

### Uncertainties of Proposed Processing Tax

On top of this situation, mills have faced talk of new processing levies. Proposal of processing taxes on the one hand and of freer conditions for imports on the other afford one of the many inconsistencies in bureaucratic government where various agencies are striving for different ends. Here we have larger competition of cheap foreign goods threatened and at the same time potential creation of higher costs of domestic production.

Manufacturers of cotton, as well as other products, were disappointed in the disclosures of the trade pact with Czechoslovakia. The government belittles its concessions to foreign countries seeking larger markets here. The administration works on the theory that small losses by American industry in some cases are a minor matter in relation to the larger purpose of promoting freer international trade.

Producers of American goods directly involved naturally do not see the situation in the same way and the cotton mill trade was moved by the Czechoslovakian pact to renewed concentration against dangerous concessions under the proposed agreement with Great Britain. It will not be forgotten, moreover, that even small imports of cheap foreign goods are disturbing to domestic trade. In fact their influence is out of proportion to their volume, as competition makes prices.

Much was hoped of the spring for the cotton industry. Only a later surge than the accustomed seasonal upturn can realize such hopes. The mills have prudently restrained production much longer than it was expected would be necessary. Converters have been committed to a cautious policy because of prevailing uncertainties. It may prove that this has led to actual shortages of goods, but mills and workers will profit most in the long run through the course pursued by management.

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*NEW ENGLAND REPRESENTATIVE: EDMUND H. LELAND, CHAMBER OF COMMERCE BUILDING, BOSTON, MASS.*

# Textile Industry States Its Position on Proposed British Trade Treaty

REPRESENTATIVES of the cotton-textile industry joined with other textiles and other business in testimony on the proposed Anglo-American trade treaty. Fifty or more witnesses, representing virtually every branch of the cotton-textile industry, were scheduled to appear before the Committee for Reciprocity Information beginning March 21 to protest the inclusion in the proposed treaty of reductions in customs duties on British-made cotton goods. Led by Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, the group is supplementing orally the elaborate argument presented in the 65-page brief filed with the Committee by the Institute and similar statements submitted in behalf of the various regional, state and group organizations in the industry.

Every classification of cotton manufactures from yarns and shoe laces to the widest types of fabrics are among the articles under consideration for inclusion in the pact and the finishing branch of the industry is also affected by the proposal.

Reduction of tariff rates on British cottons, it is argued, will subject the industry to the certainty of heavily increased competition from foreign lower cost goods at one of the most critical times in the industry's history. It is emphasized that imports of cotton goods into the United States have been increasing steadily under the existing tariffs and that any acceleration in the rate of increase, as a result of tariff concessions, must be followed by increased unemployment or downward revision of American cotton mill wage rates.

The industry, as disclosed in the various briefs, takes the position that a function of tariff rates is primarily to equalize the disparity between American and foreign wage costs and that as a matter of fact under existing tariff rates the domestic cotton goods receive less protection than is thrown about the products of many other industries.

Highest cotton mill wages in the world, the American industry's average of 42½ cents an hour as reported by the Bureau of Labor Statistics in January was 145 per cent greater than the latest available official average of 17.3 cents an hour in British cotton mills. In this same connection, comparison of the average annual productivity per employee in the American and British cotton industries with allowance for the different work week standards—40 and 48 hours respectively—discloses that the productivity per worker in American mills is 35 per cent greater than the average in the British industry.

"In view of this wide differential in wages and low differential in productivity" it is pointed out in the Institute's brief, "we believe that the American manufacturers are justified in their apprehension that even a small decrease in the tariff may in many instances lead to an important increase in the importation of goods from Great Britain."

Entirely aside from these considerations and from the fact that the industry is suffering from the sharpest recession in demand for its products on record, the industry's position is that the issue should be determined in harmony with the long-standing national policy against tariff reductions on goods produced by domestic industries in amounts adequate to supply domestic needs at prices fair to consumers.

Typical of the arguments advanced in the Institute's brief is the following discussion of the proposal to lower the tariff on cotton cloth, not bleached, printed, dyed or colored.

"Any tariff reduction in this type of fabric would affect the major part of the cotton manufacturing industry, for the reason that 87 per cent (6,220,000,000 square yards in 1935) of the goods produced are in the natural grey state; (most of the grey goods, of course, are later bleached, dyed or otherwise changed; the remaining percentage of goods produced are from colored yarns. The imports of unbleached goods are shown in Exhibits 5 and 6; obviously they amount to a very small proportion of the total domestic production of grey goods. Most of the imports come from the United Kingdom. But on account of their large equipment and low labor cost, British manufacturers are unquestionably in a favorable position to sell large quantities of cotton goods in our markets if the tariff rates were favorable to them. Therefore, no one can forecast the increased imports from the United Kingdom of the fabrics described in this paragraph that would be encouraged by lower tariff rates. The difficulty in changing tariff rates is this uncertainty about the effects. Even a small increase in the amount of British goods in our market, as a result of lower tariffs, would cause deep discouragement because no one could calculate the stopping point. With domestic demand, production volume and prices at depression levels, the time seems particularly inappropriate to make downward revisions of the tariff. . . . "

## New England Mill Situation

MARCH brought little comfort to the cotton manufacturing industry of New England, with fine goods production still dragging as only spurts of moderate activity were realized through the first quarter of the year. As in the cotton industry at large, the chief solace was in possible pick-up during the second quarter of 1938 on the basis of imperative needs among distributors of finished goods because of protracted cautious buying while inventories were disappearing.

Even a moderate downward tendency in retail sales was not a deterrent to gradual improvement of the inventory position, because the curtailment of production since last summer has been so drastic. Merchants have felt that outside developments have had an undue influence upon converters and other distributors. In contrast with speculation last year, partly in consequence thereof no doubt, buyers have been extremely cautious.

Sellers are fully as averse as buyers to an orgy of speculative excesses. Last year was only another demonstration of the evil effects all around from such procedure. The other extreme has been reached in the reaction, as of old. The market now waits for buyers to recover confidence, albeit caution has been provoked beyond reason by the evidences of general depression

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DID you ever see two tomatoes exactly alike? Of course, you didn't. For uniformity is not found in the unfabricated products of nature. That's a good point to remember the next time you buy roll coverings. The material itself must be uniform if you are to get satisfactory performance from every cot you buy. Only in a fabricated product will you find the uniform quality which is your assurance of greater efficiency and economy.

Armstrong's Seamless Cork Cots are not only fabricated but every exacting step of their manufacture is precision-checked. Because of Armstrong's exclusive tubular method of manufacture, not only is each cot the same as every other cot, but also there is uniformity from end to end, across the entire spinning surface of the cot. And because of cork's constant density the entire wall thickness of each cot is uniform all the way through. Not being limited to a thin outer spinning surface, this cork cot can be buffed to a true and concentric finish and rebuffed again and again. That is why Armstrong's Cork Cots give better running work and stronger, more uniform yarn. That is why they last longer.

These advantages combined with lower assembly costs offer you very definite savings, yet the initial cost of Armstrong's Seamless Cork Cots is no more than other types of roll covering material. The proved performance of more than 6,000,000 active spindles running on cork today is the best recommendation we can offer.

Your Armstrong representative has more facts about how your mill will benefit by a change-over to Armstrong's Seamless Cork Cots. Ask him to show you production figures of mills spinning your range of numbers. Or write today to Armstrong Cork Products Co., Textile Division, 923 Arch St., Lancaster, Pa.

CORK PRODUCTS SINCE 1860

**ARMSTRONG'S** *Extra Cushion* **SEAMLESS CORK COTS**

based upon uncertainty of business men as to political action affecting business.

Two political-economic projects have had New England cotton manufacturers by the ear during the past month. At the time of writing the hearings on the Anglo-American reciprocal trade agreement were getting under way. Then, too, there was discussion of a proposed imposition of new processing taxes on raw cotton. Both propositions were disturbing to the northeastern section of the country.

Claudius T. Murchison, speaking for the cotton industry of the nation as a whole through his position as president of the Cotton-Textile Institute, cited the seriousness of weakening the domestic markets for cotton manufacturers of home mills by showing that around 10 per cent of the whole population is dependent in one way or another on this industry. He made one point which indirectly applies particularly to the New England mills, when he said:

"Any impetus given to the increase of imports of the finer yarns and fabrics from United Kingdom would decrease the use of American cotton and increase the use of Egyptian cotton." This is the raw cotton angle, but its corollary is loss of business to the fine goods mills and New England is preeminently in that field. Dr. Murchison also repudiated the idea that the fine yarn imports would not compete with domestic production. He quoted figures to show that home mills supply most of the demand for counts of 90s and above.

We have reported here at various times through recent years that the industrial interests of New England have been accepted by the States and by various organizations, notably the New England Council, as a public concern. The sense of public obligation for the support of industry has been demonstrated emphatically in the case of trade pacts. Political representatives have joined with other groups in backing industry in its effort to induce the State Department to safeguard domestic economic institutions while trying to promote international trade.

Once more the plague of a direct tax on one industry for the purpose of supporting a national program for relief of an agricultural branch has come up for consideration, in the processing tax. The subject now comes up for challenge in New England not only as discriminatory legislation but as a form of tax proved by experience to be destructive of industry and harmful to the poorest class of consumers. If a national obligation on behalf of agriculture is to be assumed (and mill men do not challenge that idea) it is a national burden to be borne by all. Otherwise, it is a thing to throw normal economic relationships out of joint.

New England has recently seen the passing of one of its forceful executives in textile manufacturing. Ward Thoron, at the time of his death at the age of 71 years, on February 27, was president and director of the Dwight Manufacturing Company. He had been treasurer of the Merrimack Manufacturing Company. He was well known in legal and educational fields, as well as textile manufacture.

Connecticut is a state which has made poor progress in textiles for some time and recently a Federal fact-finding investigation into the causes of the depressed situation was inaugurated. Among the factors cited at the first hearing were: Japanese importations; lower southern labor costs and failure of the civic leaders to do something about the situation. The survey will, it is said, consume several months.

# "THE SITUATION"

## As Seen Across an Executive's Desk

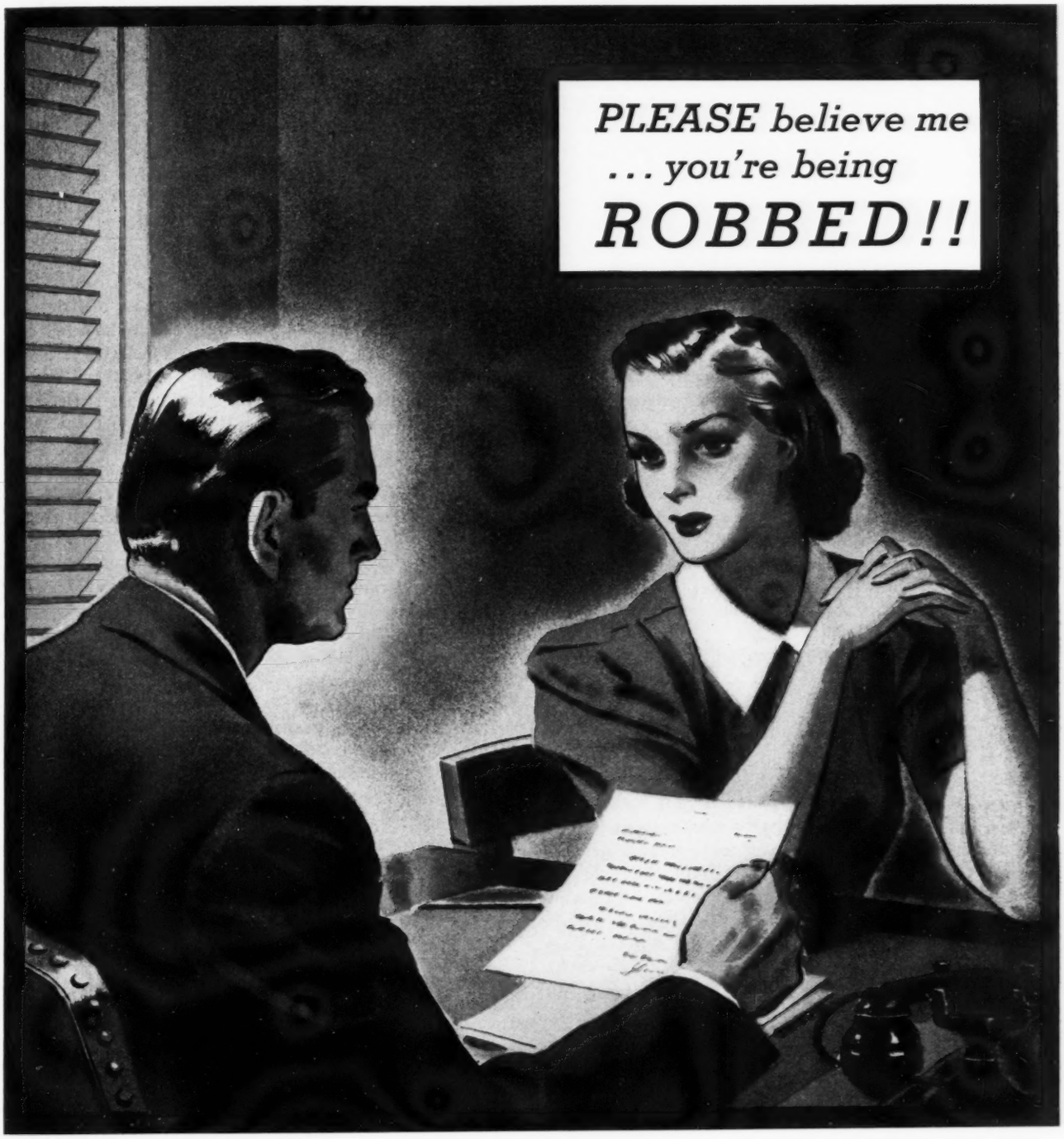
**March 19, 1938**

WE HOPE you didn't miss us too seriously last month. The "Situation" editor went off to Florida, and had a fine time. But when I got back, I found I had missed deadline; my folks had signed up with TWOC; the anti-lynching filibuster was over and the textile industry was deep in the mazes of fighting a reciprocal trade treaty with the United Kingdom. And so that is where I take up.

### The Tariff Situation

The tariff question has been an important one, always, in the textile industry. There are old-timers who have spent a lifetime studying the subject—Stuart W. Cramer, for instance—who devoted years and endless labor to seeing that we had a tariff on textile items adequate enough to protect our industry. Today we have the protective-tariff question locking horns with Secretary Hull's life-time ambition: the establishment of free trade for this country through the reciprocal trade treaty. And today we face a major crisis with the decision, whatever it may be, to be handed down by the Committee on Reciprocity Information sometime between now and. . . . The reason that the termination date cannot be specified is simply that Cordell Hull is a politician from way back yonder. Even amateur politico-economists do not expect consummation of this treaty until after next fall's congressional election.

The birds-eye view of the situation seems to be this (as far as cotton textiles is concerned): Great Britain with its vast textile industry is naturally looking for new markets. It lost its important India market to Japan and the U. S. with its millions of consumers looks like good picking. However, the United States with its own vast textile industry is more than adequately able to supply the demands of this country and does not care to have Great Britain's new market located on our staked-out territory. If a skillful selection is made of products on which tariff is to be reduced, it is most likely that the treaty will be of great benefit to the country as a whole. But because it is a declared policy that tariff reductions shall not be made on goods which are produced by home industries in amounts fully adequate to the needs of the home market and under conditions which reflect a fair price to the consumer, and because the cotton textile industry is such an industry, it is obvious that any tariff reduction on such goods produced by such industries will result in the displacement of American labor by the bankrupting and closing of textile plants,




If someone said that to you, you'd listen, wouldn't you? Then PLEASE listen to this . . .

You're being robbed this very day by hard water. Hard water means wasted soap. It means sticky soap curds...stiff, harsh, spotty or streaky fabrics...untrue, unsalable colors. And you're being robbed by dirty water. And by sudden variations in your water supply. That, too, means spoiled fabrics. Extra processing. Slowed up production. Yes . . . you're being robbed *every working day* by hard, dirty water.

Exaggeration? "No," say leading textile mills of every type. Their records show that it pays to install Permutit water-conditioning. That Permutit equipment actually saves more than its cost in a surprisingly short time. Don't let raw water continue to rob you. It costs you nothing to see the Permutit man—it may pay you handsomely. Write to The Permutit Company, Dept. B1, 330 West 42 Street, New York.

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for it is also obvious that American labor with the high standards of living to which it has become accustomed will not tolerate even forced lowering of wages to meet foreign competition—the only possible cost cutting area we have. Great Britain's textile industry has long been unionized, but even so their hourly wages average around 17 cents. The American textile hourly wage is twice that.

Of course the great danger in such a treaty, and any tariff reduction on cotton goods, is that under the most favored nation clause seventy other nations are allowed to partake of the same privilege, with no obligation to us.

## Financial Problems

Just about the time that the country as a whole was organizing independent lynching parties to travel to Washington and put an end to the year's filibuster, the Congress decided to call a halt and get down to business. Leaders of finance among the Congressional brothers put the word out that it was entirely probable that the recession was caused by the bad-boys of last year's tax program, Undistributed Profits and Capital Gains. Now, you may think that a sock in the jaw is something to warrant a ticket to the hospital, but you don't know nothin' 'til you get a kick in your Undistributed Profits!

The Senate Finance Committee has at least realized that tax laws should be written for revenue purposes: for when the surtaxes are as high as they are now, the Treasury observes diminishing returns and realizes less revenue. The Undistributed Profits tax was a nice theory but it did not work. Business did not like it because it gave them a headache for which they could find no relief. It destroyed whatever backlog of capital business might build up for recession periods. It was generally bad medicine. With the proposed elimination of the tax, as the Chairman of the Finance Committee wishes, certainly new investment will be encouraged and frozen credit may find relief.

## The New Processing Tax

Just about the time we feel someone is taking a little interest in our tax troubles, by giving us some prospective relief, along comes the ghost of another old-timer: processing tax. With the southwide ratification of the cotton provisions of the new farm program (the old Triple A trying to smell a little sweeter under a new name) the whispering of some sort of a tax to finance the scheme are heard in every corner. Some say it will be hitched to the new revenue bill; some say it will be a straight processing tax, with only 2 cents per pound this time instead of the old 4.2 cents; then along comes the latest and silliest "graduated processing tax". We say that, simply because since the former processing tax was placed upon raw material which when run through the mill and turned into finished goods carried a tax relative to the *quality* of the goods. For example: coarse carded yarns from which little waste was extracted carried a tax differential of slightly over the 4.2 cents while fine combed yarns in reality carried a tax of over 6 cents per pound! That is graduated, and the heaviest levy was on fine combed yarns which seems to be the plan this trip—in order to keep the "poor" man from paying more tax! This is mentioned in passing, for we don't want a processing tax, and if the government insists on subsidizing the farmer then we feel that Uncle Sam should try to find some other way to raise subsidization funds. Why not a general sales tax on everything from soup to nuts then we will be unable to buy anything and can turn nudist, vegetarian, hitchhiker and flee to Samoa for evermoa!

## The New Yarn Rules

One of the most forward steps taken in the spinning industry in many years, as we have mentioned before, is that of trying to set up a standard set of yarn rules under which yarn may be bought or sold on a basis equitable to both buyer and seller. These rules form a protection for the yarn industry that so far it has not had. The adoption of these rules will automatically eliminate the market hazard of "wall-street goods"—one of the most vicious practices ever indulged in by the buyers of manufactured goods of any sort. Speculation in yarns at the mills expense is the basic trouble with the yarn manufacturing industry. If the yarn rules of 1937 are adopted by the carded yarn group and the combed yarn spinners, both north and south, they will find it a great help in preventing any wild buying orgy if and when a processing tax is presented as an actuality and not a possibility. We do not want any such buying wave as preceded processing tax in 1933. All reports lead us to believe that although the market is slow today and has been slow for months, the retailers and wholesalers look at empty shelves and consequently the way is being opened for legitimate buying in a healthy manner before the close of this year.

We have skipped nearly a whole year in the regulation seasonal buying. But, since we have stood the purge so far, we can afford to buckle our belt, hitch up our pants, and see to it that we get some benefit from taking the medicine. We want buying of all sorts of goods, but we want healthy buying. We want sales to call for prices which will include the possible higher labor costs, the certain higher freight costs, the certain higher cotton costs, and a possible processing tax.

We want our "asking price" and our "selling price" to be the same identical price. The situation as it exists now is like the man who kept two kegs of likker in his cellar: drinking likker and give-away likker.

And just a couple more things to show that we are still fighting on the good old cotton promotion program: A Cotton Council was formed down in Atlanta last month, made up of representatives from many distributing houses and from the cotton textile industry.

Almost coincidental with the announcement of the formation of the Cotton Council the Cotton-Textile Institute announces a southern tour of cotton fashions, for the first time in many years. The shows will be produced under the able direction of Catherine Cleveland at Lynchburg, Va., Charlotte, N. C., Atlanta, Ga., Memphis, Tenn., New Orleans, La. A showing will also be given at the American Cotton Manufacturers Association meeting at Augusta, Ga., the latter part of April. These shows stimulate an interest that is obtained in no other way.

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# COMMENT on the Cotton Market

**New Orleans, March 14, 1938.**

THE COTTON MARKET ruled comparatively steady during the past month. In fact values were somewhat higher in the first half of the period, due largely to foreign buying and improved domestic trade demand, which, together with the new farm program, created a more cheerful feeling. Subsequently, however, the trend of values was lower, influenced by Bombay straddle undoing, a less active demand for goods and spots, larger than expected fertilizer tag sales, mill curtailment and uneasiness over the European political situation. Compared with one month ago, values show no appreciable change.

Private estimates on world cotton production this season continue to indicate a falling off in foreign production compared with expectations earlier in the season. Garside was credited with reducing his estimate of foreign growths 460,000 bales to 18,250,000 bales, which is a decrease of 1,850,000 bales from his first estimate.

Progress of consumption of cotton this season, especially in the United States, has been disappointing. Domestic consumption for February was much smaller than for February of last year, and development thus far this month are not encouraging, probably owing to the depression in general business.

Under date of March 11, Washington advised: "The Commodity Credit Corporation reported it had loaned on 5,083,773 bales of cotton at an average of 8.38 cents a pound through March 10.

This feature of the situation, the very large quantity of cotton under loan control, and the allotment provisions fixing allowable acreage to be planted this year at about 26,384,000 acres, compared with 34,383,000 acres planted last year, and the theoretical production quota at about 10,750,000 bales versus last year's 18,746,000 bales, are the sustaining features in the market just now.

Recent press advices from Washington are to effect that Senator Bankhead, Alabama, stated that farm leaders in Congress were considering methods of imposing an excise tax on manufacturers, or a sales tax, to raise between $130,000,000 and $140,000,000 for benefit payments to cotton growers. It was hoped some method of raising additional revenue for farmers could be found in time to make the money available for next year's crops.

Sales of tags were larger than generally expected, but are for all crops and not for cotton exclusively.

Domestic goods markets were quoted as dull, and last week's sales were estimated at less than 25 per cent of curtailed production. However, with the average price of raw cotton below 9 cents, offerings of free cotton are not likely to be large, especially in view of the small acreage allotment and expected small crop this year.

**WORLD'S PRESENT INDICATED SUPPLY OF LINT COTTON**

| Bales— | This season | Last season |
|---|---|---|
| Carry-over of all kinds, Aug. 1 | 13,313,000 | 13,649,000 |
| American crop, est. | 18,746,000 | 12,375,000 |
| Foreign crop, est. | 18,250,000 | 18,325,000 |
| Total, all kinds, about | 50,309,000 | 44,349,000 |

**WORLD'S CONSUMPTION OF LINT COTTON FOR FIRST HALF OF SEASON. ALL KINDS**

| Aug. 1 to Feb. 28—Est. Bales— | This season | Last season |
|---|---|---|
| American | 6,029,000 | 6,420,000 |
| Foreign | 7,979,000 | 8,650,000 |
| World | 14,008,000 | 15,070,000 |

**BRITISH BOARD OF TRADE REPORT FOR FEBRUARY**

| Year— | 1938 | 1937 | 1936 |
|---|---|---|---|
| Exports of yarn, pounds | 10,000,000 | 13,000,000 | 13,000,000 |
| Exports of cloth, yards | 117,000,000 | 160,000,000 | 169,000,000 |

**CENSUS REPORT**

| United States— Bales— | This season | Last season |
|---|---|---|
| Consumption of lint, February | 428,000 | 666,000 |
| Consumption of lint, 7 months | 3,513,000 | 4,521,000 |
| Mill stocks, February 28 | 1,815,000 | 2,061,000 |
| Stocks in public storage and warehouses, Feby. 28 | 11,656,000 | 5,962,000 |
| Stocks in mills, pub. stg. & whs., Feby. 28 | 13,471,000 | 8,023,000 |
| Stocks in mills, pub. stg & whs., Jan. 31 | 13,535,000 | 8,853,000 |
| Active spindles during February | 22,357,000 | 24,518,000 |
| Active spindles during January | 22,327,000 | 24,400,000 |
| Consumption of lint in Cotton Growing States, Feby | 361,000 | 555,000 |
| In New England States | 55,000 | 89,000 |
| In all Other States | 12,000 | 22,000 |
| In United States | 428,000 | 666,000 |
| Consumption of lint in Cotton Growing States, 7 months | 2,992,000 | 3,779,000 |
| In New England States | 428,000 | 599,000 |
| In All Other States | 92,000 | 143,000 |
| In United States | 3,512,000 | 4,521,000 |
| Active spindles in Cotton Growing States, February | 16,883,000 | 17,744,000 |
| In New England States | 4,893,000 | 6,033,000 |
| In All Other States | 581,000 | 741,000 |

**AMERICAN COTTON**

| August 1 to March 11— Bales— | This season | Last season |
|---|---|---|
| Brought into sight (marketed) | 13,744,000 | 12,216,000 |
| Exports from the United States, incl. Canada | 4,652,000 | 4,322,000 |
| Spinners takings, world | 8,431,000 | 10,027,000 |
| Stock at all U. S. Ports, March 11 | 3,106,000 | 2,003,000 |

**WORLD'S VISIBLE SUPPLY OF COTTON, MARCH 11**

| Bales— | This year | Last year |
|---|---|---|
| American | 8,309,000 | 5,605,000 |
| Foreign | 2,059,000 | 2,462,000 |
| All kinds | 10,368,000 | 8,067,000 |

## New Electrical Contact Switch on Way to Performance Record

A new electrical contact switch, designed for use in the textile industry, has shown an interesting record of performance. On February 2 it passed the mark of 27,000,000 contacts, and the inventor, Robert Hetherington, Sharon Hill, Pa., after examination of the parts, said that the probable life of the contact is in excess of 200,000,000 makes and breaks. The tests are being conducted under service conditions at a rate of 12,000 contacts per hour, operating a 110 volt, four ampere solenoid which activates a cloth guider developed by H. W. Butterworth & Sons Company, of Philadelphia. Unusual features of the contact are: the speed at which it will operate, up to 25 times per second; the small movement required, about ⅛-inch; and the light pressure necessary, about one ounce.

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# What the Southern Mills are Doing

American Enka (N.C.) Corporation is building a one-story addition to its present plant, which is to be used by the chemical division. With Potter & Shackelford, Inc., Greenville, S. C., in charge of the work, the expenditures will be over $60,000.

Robert P. Shapard, Jr., president of the Spalding Knitting Mills, Griffin, Ga., has announced that a new silk throwing mill will be located at Griffin and probably will be named American Silk Mill. Operations will be begun May 15.

Marlboro Cotton Mills, McColl, S. C., plans to modernize the plant with an RFC loan. Additional machinery to manufacture cotton sheeting will be installed. The mill will continue to make tire fabric.

Royal Dye Works, Inc., Graham, N. C., is the name of the old Bost Dye & Finishing Company. This is merely a change in name. The management and equipment will remain the same.

Dunean Mills, Greenville, S. C., is undergoing a replacement program, according to reports, and 300 new looms have replaced old looms in the mill as a starter.

Beacon Manufacturing Company, Swannanoa, N. C., will rebuild the part of the mill that was damaged by fire recently. The loss in the fire was estimated to be about $40,000.

Burlington Mills, Inc., Reidsville, N. C., has transferred the weaving equipment to other plants, and has now been equipped as a throwing plant for rayon yarns.

Machinery has been installed at the Dixie Finishing Company, Emporia, Va., and operations are under way. F. A. Tagliabue is president of the new company.

It is reported that a rayon fabric mill will be formed at Gordonsville, Ga. Plans, according to the reports, are to have a 130x130-foot building.

A cotton weaving mill will be established at Montgomery, Ala., in the building formerly occupied by the Montala Cotton Mills.

Industrial Rayon Corporation, which has begun erection of a plant at Painesville, O., is now interviewing prospective employees.

Jefferson Mills, Inc., is a new silk throwing plant at Pulaski, Va.; the air conditioned building cost about $75,000.

It is reported that a rayon fabric mill may be located at Goodwater, Ala. The name of the company has not been announced.

Kingsboro Silk Mills, Inc., Daisy, Tenn., has installed dyeing and finishing equipment.

◆

# New Publications of Textile Interest . .

(These publications may be secured direct from the manufacturer or through COTTON.)

**Robert Gair Company, Inc.,** New York City, *Sealing of Corrugated and Solid Fibre Containers*, by J. D. Malcolmson. A complete text book on the closure of paperboard shipping cases. Generously illustrated and covers all kinds of closures.

**Invincible Vacuum Cleaner Manufacturing Company,** Dover, O., *The Dollars and Sense of Modern Cleaning.* Shows the place of the vacuum cleaner in industrial plant cleanliness.

**Hyatt Bearings Division, General Motors Corporation,** Newark, N. J., Booklet giving the Ten Demandments for roller bearings. Well illustrated and gives pertinent factors concerning roller bearings.

**Anaconda Wire & Cable Company,** 25 Broadway, New York City. A 36-page pubication giving description, applications, physical and electrical properties of the company's varnished-cambric cable.

**General Electric Vapor Lamp Company,** Hoboken, N. J., *Mercury Light for Better Sight*, in which the advantages of using mercury lamps is brought out. Contains engineering data helpful to mill managers.

**The Carlyle Johnson Machine Company,** Manchester, Conn. The 1938 catalog descriptive of Johnson friction clutches. Gives dimensions and specifications for both single and double clutches. Records recent improvements.

**The Brown Instrument Company,** Philadelphia, Pa. Catalog No. 6502 on the company's hygrometers. Covers the complete line of recording and controlling hair hygrometers; both electrically operated and air-operated humidity controllers are described.

**Johnson Bronze Company,** New Castle, Pa. Complete catalog, No. 380, on bronze bearings, bushings, universal bars, electric motor bearings, babbitt, and graphited bronze bearings.

**Wildman Manufacturing Co.,** Norristown, Pa. Folder on pattern fabrics knitted on company's pattern machine (Style FBSS-6). Carries illustration of this machine.

**Carrier Corporation,** Syracuse, N. Y. A bulletin which is a miniature catalog on air conditioning, refrigeration, and heating. Indicates a wide range of equipment for the home, business, and industry. Descriptive and dimensional data are included, with some references to the diversity of applications that are served by Carrier equipment.

**Fairbanks-Morse & Company,** 600 S. Michigan Ave., Chicago, Ill. Bulletin 3600-A-3 descriptive of the Model 36-A-S Diesel and gas engines.

**Link-Belt Company,** 307 N. Michigan Ave., Chicago, Ill., Book No. 1545 giving dimensions, ratings and other data on new flexible coupling, which is an improvement over the RC type.

**Whitin Machine Works,** Whitinsville, Mass. Circular descriptive of the new return air condenser for use in picker rooms. Condenser used to solve problems of air conservation, purification, and heat economics.

**The Torrington Company,** Torrington, Conn. Booklet containing reprints of advertisements on new type needle bearing for use on spinning spindles. Will be helpful to engineers and advertisers.

**American Asphalt Paint Company,** Chicago, Ill. Study of actual cash savings in light bills to be effected by painting various types of interior building materials with white paint. Shows light reflectivity of such materials as brick, wood, concrete, etc.

**Ingersoll-Rand Company,** Phillipsburg, N. J. A new bulletin covering single-, two-, and three-stage steam jet ejectors for removing air, gas, or vapors from condensers and vacuum chambers in industrial processes.

**Allis-Chalmers Mfg. Co.,** Milwaukee, Wis. Leaflet No. 2124-A, describing Type ARZ enclosed, fan cooled motors for locations involving dust, dirt, acid fumes and moisture.

**Allis-Chalmers Mfg. Co.,** Milwaukee, Wis. Switchboard Bulletin No. 1190, describing the company's complete and modern switchboard line, with information also on oil circuit breakers and metal-enclosed switch gear.

**Allis-Chalmers Mfg. Co.,** Milwaukee, Wis. *Distribution Transformers*, covering 200 kva and 150 kva units for small substation service in all commercial voltages.

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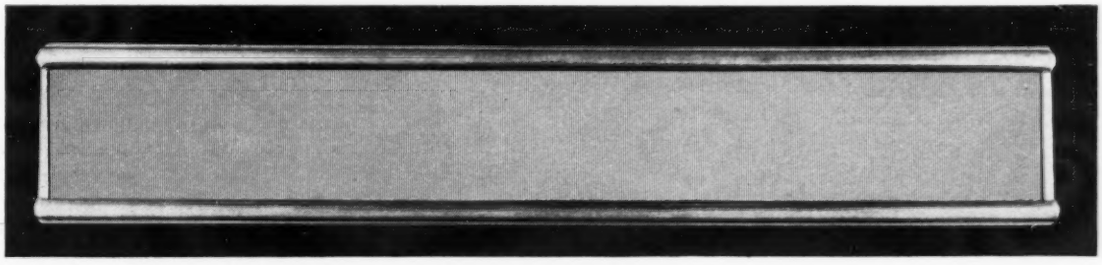
IS PRESENTED TO THE INDUSTRY

WITH ITS PERFORMANCE VALUE ALREADY PROVED



Pat. Pending

On the Rugged Ribbed Reed the Conventional Paper is Replaced by a Permanent Built-On Cover of

## ELECTROPLATED (RUST RESISTING) STEEL

(Not a Formed Metal Tube Slipped Over a Much Smaller Rib)

## affording:

- **EASIER HANDLING** WHEN OUT OF THE LOOM. More rigid and particularly desirable in the case of long reeds. No exposed ends of dents to hang on warp or sticky paperless ribs to handle.
- **EASIER ALIGNMENT** IN THE LOOM. So made that the face depth is the same allowing alignment for reed in any position. This applies when changing to reeds of different counts.
- **BETTER "COME BACK"** OF THE DENTS. The dents are not clinched and where they project through the ribs they are embedded in the added pitch, both features aiding the "come back."
- **MUCH LONGER LIFE** GREATER ECONOMY. The metal cover is permanent. There is no paper to come off exposing the pitch in the band to the air. These volatile oils are sealed in and with the addition of the extra pitch the consistency of the pitch does not change with age.

Presentation of this reed to the mills generally has been purposely held back until it could be tried out over a reasonable period in quantities, under varying conditions. Now—the enthusiasm of those mills prompts us to offer them to you without any reservations. They have proven to us that our claims are correct.

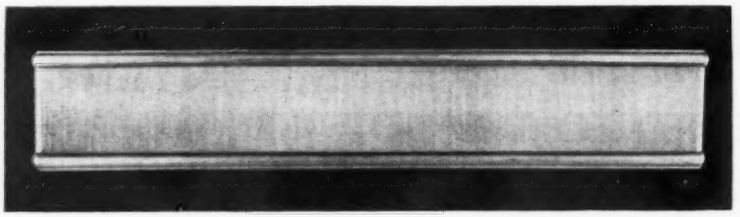
The price of this reed is surprisingly low—1/4c per running inch of reed more than our regular TRUWEAVE pitch band reed.

A trial in your weave room will convince you that from every point of view this is the most economical reed to use.

## TEXTILE SPECIALTY CO., INC.

GREENSBORO, N. C.

# NEW TEXTILE EQUIPMENT and MATERIALS



New reed with coppered steel ribs

### Pitch Band Reed with Ribs Covered with Coppered Steel

Textile Specialty Company, Inc., Greensboro, N. C., have now placed on the market a new pitch-band reed, with ribs covered with coppered steel, which has been under mill test for several months. This is called the "Truweave" rugged-ribbed reed. The coppered steel cover is built onto the rib as an integral part of it; it is applied over the ordinary pitch band reed construction, and adhesively fastened, fitting the reed like the ordinary paper and becoming a part of the rib itself. It is so built, the manufacturers explain, that the dents are exactly in the centers of the ribs, so that when the reed is once in alignment it can be reversed end for end, bottom for top, or side for side, and still be in alignment. The construction permits the use of extra pitch, which is added in such a way that the ends of the dents are fully embedded in it. Dents are replaced by simply notching the cover with a three-cornered file. The new reed, available at present in the ½-inch rib only, may be made in semi-oval or oval dents, for any count, with any required air space.

◆

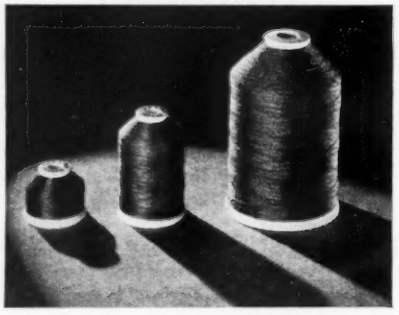
### New Mill White Paints

American Asphalt Paint Company, Chicago, Ill., has announced a complete new line of mill white paints. Along with this announcement, the company has published an interesting study of the actual cash savings in light bills to be effected by painting various types of interior building materials with white paint. The analysis, completed by Robert W. Hunt Engineering Laboratories, shows the light reflectivity of such materials as brick, wood, concrete, insulating board, and metal before and after painting with Valdura mill whites. It further indicates the decreased lamp wattage required to furnish adequate illumination after mill white paint is applied. The line is especially formulated for maximum whiteness and permanent resistance to the yellowing action of industrial fumes and vapors. Of the three finishes available, flat, egg-shell, and gloss, the flat has one of the highest light reflectivities ever recorded for a paint product, it is said. For unusually severe conditions of industrial and chemical fumes, Valdura provides a special fume resisting white which dries in 4 hours.

◆

### Streamline Package for Thread

Atwood, Crawford Company, Pawtucket, R. I., manufacturers of high grade spools, braider bobbins, skewers, rolls for webbing and paper, etc., have introduced a new spool package, which



Streamlined thread package

is being used by the Textile Thread Company, linen thread makers, Watertown, Mass. Principle feature of the new type package is the novel single-head wooden spool called the Air-Flo. The construction of this spool is said to have several interesting advantages in that it assures even unwinding, with no chances of thread catching or caving in, to cause snarling and breakage. The Air-Flo is believed to be the first single-head wooden spool to be used for both commercial and retail size thread packages. The spools are made in various sizes to hold from 50 yards to one pound of thread. Coincidental with the new Air-Flo spools, the Atwood, Crawford Company has worked out a new winder attachment, designed to make the winding process simpler and more efficient. The attachment is adaptable to standard Universal winders, and is said to require no attention or further adjustment after it is once regulated.

◆

### Non-Skid Flooring and Stair Treads

The American Brake Shoe and Foundry Company, 230 Park Ave., New York City, is now manufacturing an improved type of non-slip safety metal, which is said to be highly resistant to rust and acid corrosion and unaffected in its non-slip properties by water, oil, or other slippery liquid substances. It is manufactured under the trade name of Non-Slip ABSCO Metal. Electric furnace abrasive grains, the best anti-skid and hardest material known, are applied to cast iron, bronze, aluminum, or nickel silver, by a special process of casting. The abrasive grains are deeply and uniformly bonded into the metal at the time of casting, thus forming a virtually indestructible bond between the abrasive grains and the metal. The grains protrude sufficiently above the surface to give a bite to the metal which eliminates all possibility of slipping. The metal is extensively used for stair treads, ramps, industrial floors, platforms, elevator door sills, swing type door thresholds, trench covers, etc.

◆

### Self-Emulsifying Oil

Haas-Miller Corporation, 4th and Bristol Streets, Philadelphia, Pa., have announced the development of a colorless, self-emulsifying oil, known as Hamico No. 700. The manufacturers describe it as containing no free fatty acid and less than ½ of 1 per cent of moisture; odorless, stainless and non-oxidizing.

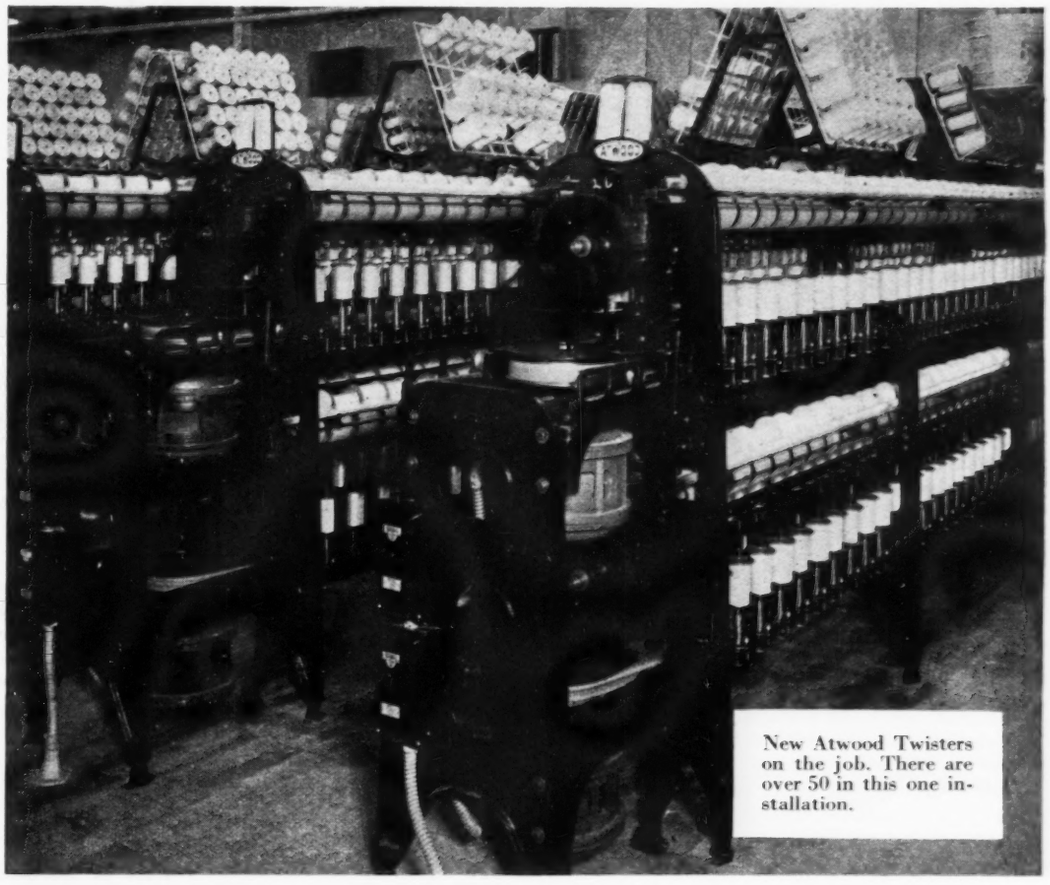
◆

### Flexible Coupling Announced

Link-Belt Company, 307 N. Michigan Ave., Chicago, Ill., has announced the development of a new flexible coupling, Type RCB, which embodies major improvements over the company's Type RC roller chain coupling long furnished for connecting shafting in line. The new RCB coupling consists of two cut-tooth sprocket wheels or coupling halves which are connected by a piece of specially constructed single-width finished steel roller chain, using a recently patented divided roller feature which combines the advantage of double roller chain with the more rugged and simple construction of single width chain. The divided roller provides independent roller action for each sprocket, and as the contact between roller and sprocket causes the roller to revolve on its bushing, any tendency to scuff the rollers and sprocket teeth is said to be avoided. Longer coupling

# SEE THE NEW ATWOOD MACHINES

*for Silk and Rayon*



New Atwood Twisters on the job. There are over 50 in this one installation.

## TWISTING — 5 B'ING — WINDING

Are you fully informed as to the new standards of quality, quantity and economy of yarn production now in effect as the result of widespread commercial application of the latest model Atwood Machinery . . . You owe it to yourself to get the whole story as it applies to *your* yarn and *your* operating conditions and needs. See the complete Atwood running demonstration at Philadelphia

**BOOTH NOS. 206-207-212-213**

or, if you can't make it, get in touch with our nearest office for full information.

# THE ATWOOD MACHINE COMPANY

STONINGTON · CONNECTICUT · U·S·A·

SALES OFFICES

STONINGTON NEW YORK WILKES-BARRE

CHARLOTTE LOS ANGELES

life, and extension of the range of efficient application are claimed for the new coupling.

◆

### New Bar Stock Valves

Crane Company, Chicago, Ill., has introduced three new bar stock valves which have uses in almost every industry. These small 3,000 pound W.O.G. plug type disc, globe, and angle valves are called bar stock valves because their bodies and bonnets are made from solid bar stock. They are considered ideal for connections on orifice meters, regulator leads, by-passes, gauges, and for many similar services where accurate regulation of flow is desired or where parts of measuring instruments must be protected against the sudden release of high pressure. The new globe valve, No. 222½, is made with male and female ends in sizes ⅛- to ¾-inch inclusive. It is considered especially convenient where it is desirable to screw the valve directly into equipment having a female opening, thus eliminating the need for a nipple.

◆

### Ribbon Counterflow Exchange and Cooler

Condenser Service & Engineering Company, Inc., 310 12th St., Hoboken, N. J., has made available a new ribbon counterflow exchange and cooler which has narrow, flat passageways for both liquids, arranged for true counterflow heat transfer. There are no gasketed joints which could permit leakage between fluids to result in contamination, and all passageway or transfer surfaces are accessible for cleaning, it is said. The passageways for one liquid can be opened for cleaning by removing two heads, without even shutting off the flow of liquid through the other passes. Passageways are streamlined to reduce turbulence and friction losses.

◆

### New Convertible Gas and Diesel Engine

Fairbanks, Morse & Company, 600 S. Michigan Ave., Chicago, Ill., has announced a series of 4-cycle, vertical, convertible Diesel and gas engines, Model 36-A-8, which fills a definite need for sturdy, medium-speed engines in the 200 to 300 hp. range. They are built in both 6- and 8-cylinder combinations, with 8-inch bore and 10½-inch stroke, developing 35 hp. per cylinder at 720 r.p.m. Smaller sizes of Model 36-A Diesels are available in ratings as low as 8 hp. Both Diesel and gas engines in the new 8-inch cylinder size are offered for stationary service, and the Diesels are offered for marine propulsion in complete, unit-built generating sets as well.

# TIMELY NEWS ITEMS WITH A TEXTILE SLANT . . . .

### Still Succeeds Littlejohn with Steel Heddle Mfg. Co.

Fred L. Still, for many years superintendent of the Victor Plant of Victor-Monaghan Company, Greer, S. C., has become South Carolina representative

Mr. Still

for the Steel Heddle Manufacturing Company, with headquarters in Greenville, S. C., succeeding Henry A. Littlejohn, resigned. Mr. Still is a member of a well-known textile manufacturing family and is past president of the Southern Textile Association.

◆

### "The Circus Is in Town"

A unique direct mail advertising campaign has been executed by the Calco Chemical Co., Inc., Bound Brook, N. J. The theme of the mailing pieces is "The Circus Is in Town", and cut-out figures of animals are used for showing swatches of dyed materials instead of the conventional swatch. A circus animal was used in each mailing piece; each mailing piece went to five trades—wool, cotton, rayon, leather and paper. Men in the cotton business received an animal dyed on cotton; wool men received an animal dyed on wool, etc. The dye shown on the animal was described inside the folder. Ten animals were used; each recipient was to take the animals home to his children to make a complete collection. At the conclusion of the series, each child who sent a letter to the company received a set of performing clowns.

The company's sales activities were tied in to the circus spirit by running a contest on the sale of Azo dyes and having monthly contests for the title of champion tight rope walker, bicycle rider, champion weight-lifter, etc. The company's trade paper advertising was keyed into the program of the circus and featured animals.

Returns from the campaign were highly encouraging to the company.

### New Tertiary Amine

Rohm & Haas Company, 222 W. Washington Square, Philadelphia, Pa., has developed a new tertiary amine—Hyamine A—which is substantially non-volatile and, since it is amphoteric, forms salts with acids or alkalies. It forms water-soluble salts with inorganic acids and oil-soluble salts with fatty acids, rosins and naphthenic acids.

◆

### Cone Develops New Rayon Cotton Flannel

Cone Export & Commission Company have introduced a new rayon cotton flannel, featuring an unusually soft, lustrous finish, similar to that of fine woolen broadcloth. The new fabric, which is two-thirds rayon and one-third cotton, is 36 inches wide, and Sanforized-shrunk to insure washability satisfaction. The color range is limited to six plain colors: wine, navy, pink, light blue, tea rose and white. All are fast color. The new fabric is especially suited to infants' wear, night wear, lounging garments, robes, house coats and sport shirts.

◆

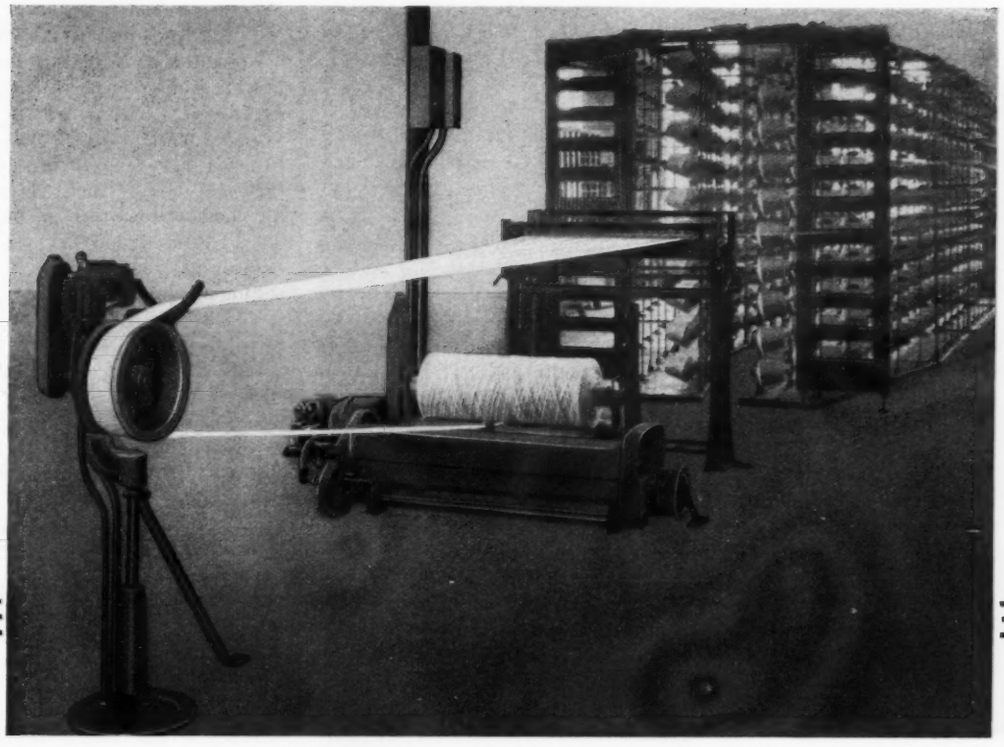
### Ross of Carbide and Carbon Located in Atlanta

J. W. Ross of the technical division of Carbide and Carbon Chemical Corporation, is now located at 282 Spring St., Atlanta, Ga. Mr. Ross is southern representative and is calling on the finishing plants and bleacheries, and cotton mills having finishing departments. Carbide and Carbon Chemical Corporation manufactures Tergitol penetrants, glycols, synthetic ethyl alcohol, triethanolanine and synthetic methyl alcohol.

◆

### Changes in Morse Chain Co.

According to Walter W. Bertram, sales manager of Morse Chain Company, Ithaca, N. Y., several changes have been made in the sales organization of the company. Arthur F. Weston has become manager of the Chicago office; he formerly was in charge of the Cincinnati office. William C. Gilbert, formerly of the Detroit office, has been transferred to Chicago. C. A. Shetter, formerly manager of the Cleveland office, has been made manager of the Cincinnati branch. Lon Sloan, formerly special development engineer at Chicago, has become manager of the Cleveland office.



ILLUSTRATED is our High Speed Balling Warper and High Speed Section Beam Warper equipped with Magazine Cone Creels and Eyeboard Stop Motions.

The vital reason for installing Cocker High Speed Warpers and Magazine Cone Creels is the saving in costs in Warping, Slashing and Weaving—Use COCKER WARPERS FOR MAKING PROFITABLE WARPS.

## COCKER MACHINE & FOUNDRY COMPANY

**GASTONIA,** *Also Builders of High Speed Warpers and Slashers for Rayon Yarns* **NORTH CAROLINA**

NORTHERN & CANADIAN REP.: J. S. FALLOW & COMPANY, NEW BEDFORD, MASS.

### Bailey Represents Veeder-Root in England

Robert W. Bailey has been put in charge of the Veeder-Root British subsidiary, Veeder-Root Ltd., Dickinson Works, Purley Way, Croydon, Surrey, England, according to J. H. Chaplin, sales manager of the company. Mr. Bailey has been with Veeder-Root in the United States for a number of years, working out from the company's Greenville (S. C.) office under Edwin Howard, being later transferred to the Hartford (Conn.) office to take care of the company's textile business. He will be in England for an indefinite period, and has taken his family with him.

◆

### Blickman Enlarges

S. Blickman, Inc., Weehawken, N. J., fabricators of stainless steel equipment for the textile and dyeing industry, has installed several new departments and added new equipment in its plant. In line with the company's general policy of utilizing the latest technical advancements, the company's welding, grinding, polishing, and machine departments are now equipped with the most modern and up-to-date facilities for the fabrication of equipment in stainless steel and other alloys. The plant area with its increased manufacturing facilities is now more than 150,000 square feet.

◆

### Houghton Revises Sales Force

Revisions in sales divisions and the appointment of a new assistant general sales manager have just been announced by E. F. Houghton & Co., manufacturers of oils, leathers and metal-working products, Philadelphia. G. W. Pressell, formerly executive vice-president, has also assumed the position of general sales manager. To assist him, C. G. Schultze, former sales manager, central division, has been named assistant general sales manager. Mr. Schultze will direct field activities and be in charge of sales promotion of established products, working with the advertising department headed by D. C. Miner.

The Central Division has been divided into three sections: Pittsburgh, Detroit and Chicago divisions. Sales division heads are as follows: H. E. Sanson, eastern division; W. H. Brinkley, southern division; A. A. Miller, western division; D. J. Richards, Pittsburgh division; H. E. Martin, Detroit division; E. C. Barlow, Chicago division.

Departmental heads in the main office in Philadelphia are set up under a newly created position of research sales manager, filled by L. D. Holland. Research Department heads include: C. P. Green, manager, lubrication research; J. N. Smith, manager, leather research; C. B. Kinney, manager, textile research; O. M. Gibson, manager, metal research.

◆

### Cannon Has Two Winners in Package Competition

Cannon Mills, Inc., was the only company to receive two awards in the 1937 All-America Package Competition sponsored by *Modern Packaging*. Cannon received the gold award in the transparent bag group for their Handy Pack sealed transparent envelope for hosiery, and also the silver award in the set-up paper box group for their Dowry Chest.

The Handy Pack is an envelope of Cellophane, assuring the purchaser's

Cannon's "Handy Pack"

getting the hosiery mill-finished and free from flaws or snags. The front of the envelope carries information women should know about hosiery; on the back is a label containing the size, number, quality, construction, etc.

The Dowry Chest is a large set-up box chest, containing two sheets, two pillow slips, two extra size bath towels, two large bath towels, two guest size bath towels and two wash cloths. The chest is executed in good taste, covered with white and peach paper, harmonizing with the peach towels and the white sheets. The chest was made by the Old Dominion Box Company.

◆

### New Testing Service

The United States Testing Company, Inc., Hoboken, N. J., is offering a new testing service for medium-sized retail stores, which are not large enough to have their own laboratory. The company's "6-point" testing plan includes the analysis of five different pieces of merchandise each month. The stores can obtain specifications for future purchases and comparisons as well as factual information as to how the merchandise can be advertised and promoted.

### Whitin to Sell Condenser for Knowlton & Newton Co.

Knowlton & Newton Company, Inc., Lowell, Mass., have recently made an agreement with Whitin Machine Works, Whitinsville, Mass., as their licensed agent covering the manufacture and sale of their patented return air condenser as used in picker rooms. This has been done in order that the device may be handled in a broader selling field.

The return air condenser is said to have been installed successfully in upwards of 60 cotton picker rooms to date as a solution to the problems of air conservation and purification in the picker department, as well as being a factor in heat economies.

◆

### Leon Southern Representative for Haas-Miller

Walter G. Leon has become southern representative for the Haas-Miller Corporation, 4th and Bristol Streets, Philadelphia, and will make his office at Charlotte, N. C. The Haas-Miller company manufactures industrial chemicals, oils, and greases.

◆

### Walters of Crane Company Passes Suddenly

Horace E. Walters, 49, district manager in the Birmingham, Ala., office for Crane Company, Chicago, succumbed suddenly on February 23 in Chicago as a result of a heart attack. Mr. Walters joined the company in 1911 and his outstanding work brought him rapid promotions.

◆

### Deuble New England Sales Manager for Jacques Wolf

Walter D. Deuble has been named New England district sales manager for Jacques Wolf & Company, manufacturing chemists and importers. Mr. Deuble will make his headquarters at 126 Pawtuxet Ave., Edgewood, R. I. He has been representative in this territory for the past 20 years.

◆

### Heating, Ventilating and Air Conditioning Guide

The American Society of Heating and Ventilating Engineers, 51 Madison Ave., New York City, has published the 1938 Heating, Ventilating and Air Conditioning Guide, official reference book of the Society. This year's issue, the 16th consecutive edition, contains 840 pages of technical reference data included in 45 chapters covering material on design and specifications of heating, ventilating, and air conditioning systems. There are over 300 pages of catalog data by 218 manufacturers, cross indexed as to product and manufacturer. Single copies are available for $5.00.

## Reviews of Recent Books

### "Cordage, Twine and Duck Trade"

Davison Publishing Company, 201 East Ridgewood Ave., Ridgewood, N. J., have made available the latest catalog for the cordage, twine and duck industries, which also covers such lines as awnings, tents, sails, bags, ship chandlers, and kindred lines. It has extensive information in the mill reports. Strongly bound in quality cloth covers with thumb indexes to each section, clearly printed on coated paper, it sells for $3.00 per copy.

◆

### "Rayon and Silk Trades"

Davison Publishing Company, 201 East Ridgewood Ave., Ridgewood, N. J., has released the new *Rayon & Silk Trades* directory. This is the 42nd annual edition. It contains 700 pages, is thumb indexed, and guarantees an accurate and complete revision of both trades. In sturdite and gold binding with quality paper, the cloth covers sell for $5.50 and the de luxe office edition for $7.50. The size is 6½x9 inches.

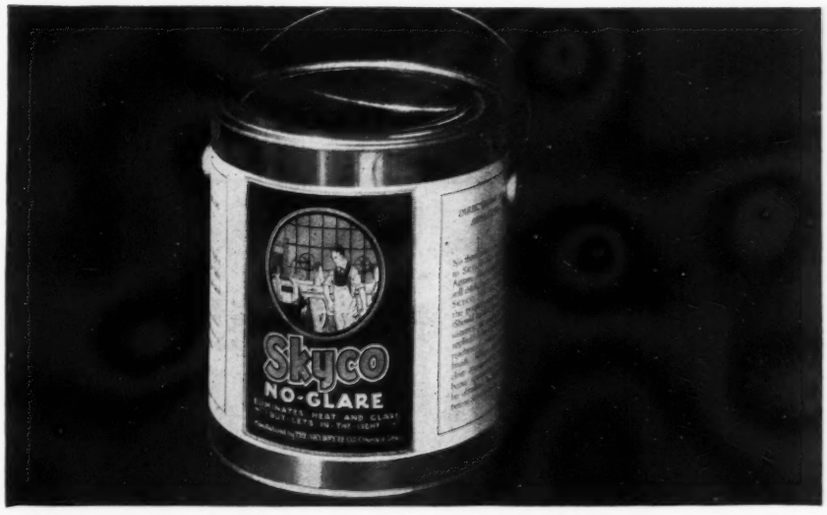
◆

### "Cotton Spinning"

A new and up-to-date textbook, *Cotton Spinning*, by Willis, Dunlap, and Moore, has been issued. It is one of a series of texts on cotton yarn manufacturing being prepared under the supervision of H. H. Willis, head of the Clemson College textile school, and in co-operation with the Textile Foundation. The books of the series which have thus far been published are *Cotton Opening, Cleaning and Picking; Cotton Carding; Drawing Frames; Roving Frames;* and *Cotton Spinning.* Two additional books, one on *Cotton Classing*, and the other on *Combing*, will probably be completed by June of this year. These texts are well illustrated and thoroughly up-to-date. They are proving valuable for use in textile schools, and in textile evening classes in industrial centers as reference books.

It has been pointed out previously that many of the textbooks and text material available for use in textile schools, mill vocation schools, etc., are out of date or represent in large measure practice not applicable to American-made machinery. The Textile Foundation has done an excellent job in overcoming these deficiencies in the books published.

The fact that these books are practical is evidenced by several of the articles in them being adapted from articles in COTTON, which articles are written by practical men. The books sell for $1.50 each, and may be secured from H. H. Willis, Clemson, S. C.


# Buy Your Window Shades in Cans

## *at 1-2c Per Square Foot!*

SOLVE the expensive problem of eliminating glare and heat from factory windows and skylights through the use of SKYCO NO-GLARE, the sky-blue liquid which, when painted over glass, filters the fierce rays of the sun—shutting out **all** of the glare and 15% of the heat, yet it admits 94% of the light. The cost is only about ½c per square foot of glass covered.

For ten years NO-Glare has served many of our largest industries, saving them hundreds of thousands of dollars in expensive window shades. No-Glare has never been successfully imitated. If you have tried substitutes and been disappointed—try the **genuine.** If it does not live up to our claims, you may return it at our expense.

No-Glare is easy to apply, either to the inside or outside of the glass, and will stay on until removed with brush and warm water. Let this economical and effective product solve **your** problem. Use the coupon or write for a 1-gallon trial can on a money-back basis.

Like an Umbrella Over Your Plant

JUST OFF THE PRESS!

The Skybryte **Complete** Maintenance Catalog is just off the press. This valuable guide to modern maintenance should be in **your** files. Write for it.

## Try NO-GLARE at our Risk

*Write or Use Coupon*

**The SKYBRYTE Co.,**
**3129 Perkins Ave., Cleveland, Ohio.**

Gentlemen:

Enclosed find trial order of 1-gallon of SKYCO NO-GLARE at $3.50. It is understood that if we are not satisfied we can ship it back collect and our money will be refunded.

Name of Company _____

Address _____

# PERSONAL NOTES
## about Men You Know

J. S. BURNSLEY, formerly master mechanic of the Milstead (Ga.) Plant of Callaway Mills, has become superintendent of the plant, succeeding JAMES NEWSOM, resigned.

E. P. JENKINS, formerly of the Inman (S. C.) Mills, has been made superintendent of the Martinsville (Va.) Cotton Mill Co., Inc., a division of the Chadwick-Hoskins Company, Charlotte, N. C., of which NEWTON G. HARDIE is general superintendent.

HAROLD C. BARNEY, formerly resident manager of the United States Finishing Company, Sterling, Conn., has become resident manager of the Hartsville (S. C.) Dye Works, a subsidiary of the former company.

JOSEPH R. MORTON has resigned his position with the Tubize Chatillon Corporation, Rome, Ga., to devote his entire time to the business of the Textile Chemical Products Company, Greensboro, N. C., of which he is president.

G. M. PATE has been elected president of the Ada McLean Cotton Mills, Inc., Lumberton, N. C., succeeding H. B. JENNINGS, who asked to be relieved of further managerial duties.

LEONARD S. LITTLE, until recently president of the United States Finishing Company, has been appointed treasurer of the Amalgamated Dyestuff & Chemical Works, Inc. Mr. Little will have charge of research work and production, and will have his headquarters at the company's manufacturing plant at Plum Point, Newark, N. J.

J. C. MILNE, long associated with the Geneva (Ala.) Cotton Mills, has been made general manager of the newly organized mill, which will be located in the buildings of the old Montala Cotton Mills, Montgomery, Ala.

MILO D. CLADER has resigned as superintendent of Frank Ix & Sons, Inc., Charlottesville, Va., to join the Duplan Silk Corporation, Grottoes, Va. He will make his home in Waynesboro, Virginia.

IRVING LITTON is serving as superintendent and general manager of the All-Tex Finishing Company, New York City, succeeding DANIEL HANDSMAN who resigned to enter the converting business.

CLARENCE CADY has become overseer of finishing at the Oxford (Me.) Manufacturing Company.

L. B. HUNT, formerly superintendent of the Clover (S. C.) Mills, has become superintendent of the Manchester (N. H.) Yarn Mills, Plant No. 1.

M. W. ROZAR, formerly assistant sales manager of the Bibb Manufacturing Company, with headquarters at Macon, Ga., has been promoted to sales manager. He is succeeded as assistant sales manager by G. PRICE BARNWELL, formerly in charge of sales in the southern territory. The same titles have been given JOHN J. MCKAY, JR., formerly manager of the men's wear and shirtings department, and W. ALLEN CHAPPELL formerly manager of the twine and hosiery departments. J. S. STROZIER, formerly production manager, has been placed in charge of the southern territory, succeeding Mr. Barnwell. G. DEWEY JONES is the new production manager.

STEVEN ZEMINIK has been made overseer of finishing at the Hudson River Woolen Mills, Newburgh, N. Y.

JOHN G. WEBB, Hillsboro, N. C., has become southern representative for Atwood, Crawford & Co., Pawtucket, R. I. Mr. Webb will continue to represent L. M. Hartson Company, North Windham, Conn., also.

LEONARD WALSH, general manager of Plymouth Finishing Co., Fall River, Mass., has been elected president of the company also, succeeding PRESTON H. HOOD, who continues in the capacity of director.

DON CURTIS, formerly agent of the American Thread Company, Willimantic, Conn., succeeds LLOYD E. CONE as vice-president of the Summit Thread Company, Easthampton, Mass. Mr. Cone plans to become a thread manufacturer in his own name.

JAMES M. DONNELLY has become superintendent of the Bigelow-Sanford Carpet Co., Amsterdam, N. Y., succeeding WELLESLEY B. COOPER, resigned.

### Obituary

FREDERICK H. BISHOP, formerly vice-president of the Universal Winding Company, died on Saturday, March 19, at 89 years of age. Mr. Bishop started work for Mr. J. R. Leeson as a thread salesman several years before Mr. Leeson organized the Universal Winding Co., and was actively connected with the administration of the company until he retired in 1934. During these years he made many friends in the textile industry, in this country and in the foreign field. He was a beloved and respected figure in the industry, and was a strong advocate of exhibitions of textile machinery, many of which he helped to organize. He was very active physically, almost up until his death, having attended the Knitting Arts Exhibition in 1937.

Mr. Bishop

WILLIAM SAMUEL MORTON, 63, for 30 years superintendent of the Dallas (Tex.) Cotton Mills Company, prior to his retirement six years ago, passed away in Dallas February 28. He was one of the organizers of the Texas Textile Association and was its first president.

C. L. BUMGARDNER, superintendent of the Climax Spinning Company, Belmont, N. C., passed away early in March after several months illness.

RALPH MILTON ODELL, New York manager for the Kerr Bleaching and Finishing Works, passed away at the age of 54, after an illness of a month.

WASHINGTON ANDERTON, 84, retired superintendent of the old Cocheco Print Works, Dover, N. H., passed away recently.

JOSEPH M. JACKSON, former treasurer of Wellington, Sears Company, passed away recently in Chestnut Hill, Massachusetts.

WARD THORON, 71, president and director of the Dwight Manufacturing Company, passed away in Boston recently.

C. E. BLAKELY, 43, southern representative of the National Aniline & Chemical Company, with headquarters in Charlotte, N. C., passed away March 4 in Montezuma, Ga., after an emergency operation.

# The BARBER-COLMAN SYSTEM of SPOOLING and WARPING

## is based on 21 years experience in the manufacture of automatic Spoolers and High Speed Warpers

BARBER-COLMAN Company was the first to recognize (over thirty years ago) the possibility of improvements in spooling and warping departments, but it was not until after ten years of intensive experimental development that these machines were offered for sale. Automatic Spoolers and High Speed Warpers installed in 1917 are still in operation on a two-shift basis.

CONSTANT attention to winding problems by competent engineers and the friendly cooperation of leading cotton manufacturers since the first installation have resulted in increased machine capacity, greater flexibility, lower maintenance costs and the numerous mechanical refinements which this system now offers.

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**ROCKFORD, ILLINOIS, U. S. A.**

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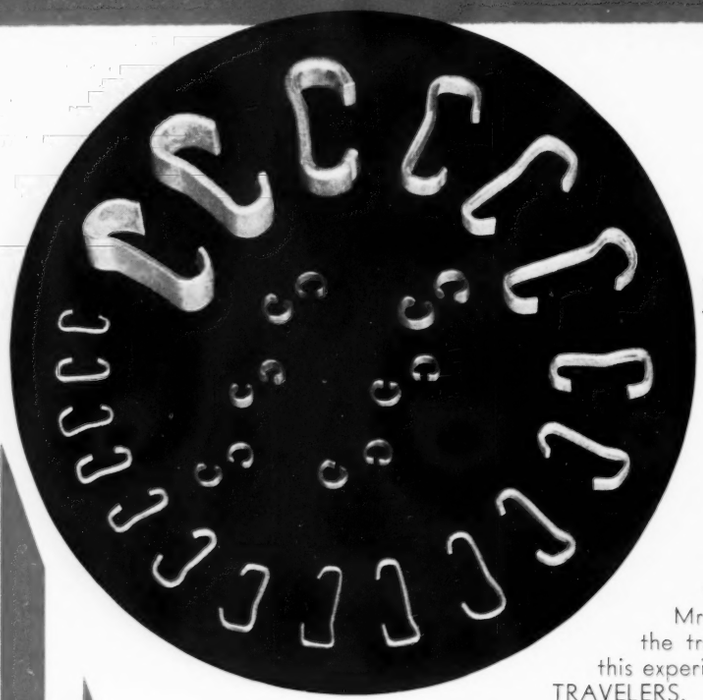
# CARTER TRAVELERS



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Mr. Carter has been identified with the traveler industry for 25 years, and this experience has been built into CARTER TRAVELERS.

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A. Dewey Carter will cover N. C., S. C., Va., with headquarters at Gastonia, N. C.

CARTER TRAVELER CO.

*A DIVISION OF . . . .*

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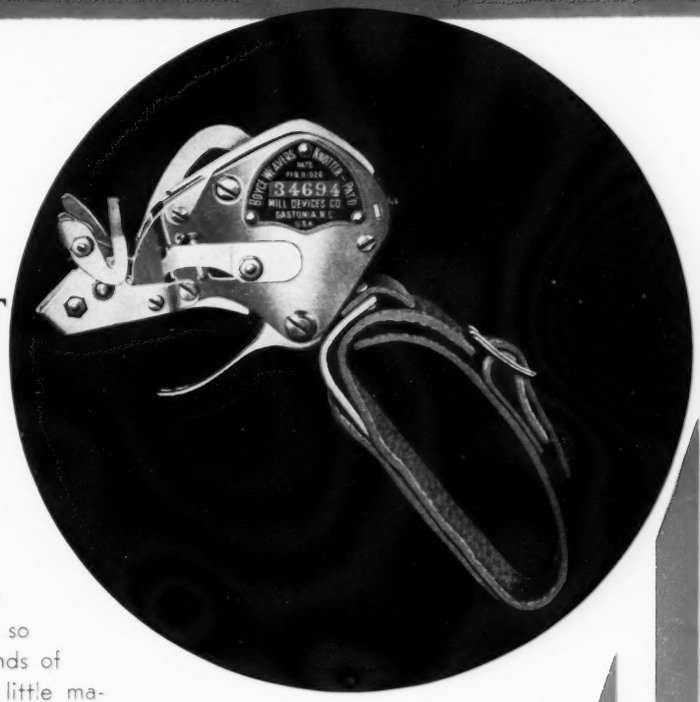


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For many years BOYCE WEAVERS KNOTTERS have been standard equipment in the textile industry, tying rapidly the perfect knot that weaves right into the cloth and burying itself so that it is invisible. Many thousands of dollars have been saved by this little machine in cotton, rayon and silk mills, in the reduction of seconds and loom stoppages, increased production and higher quality fabrics.

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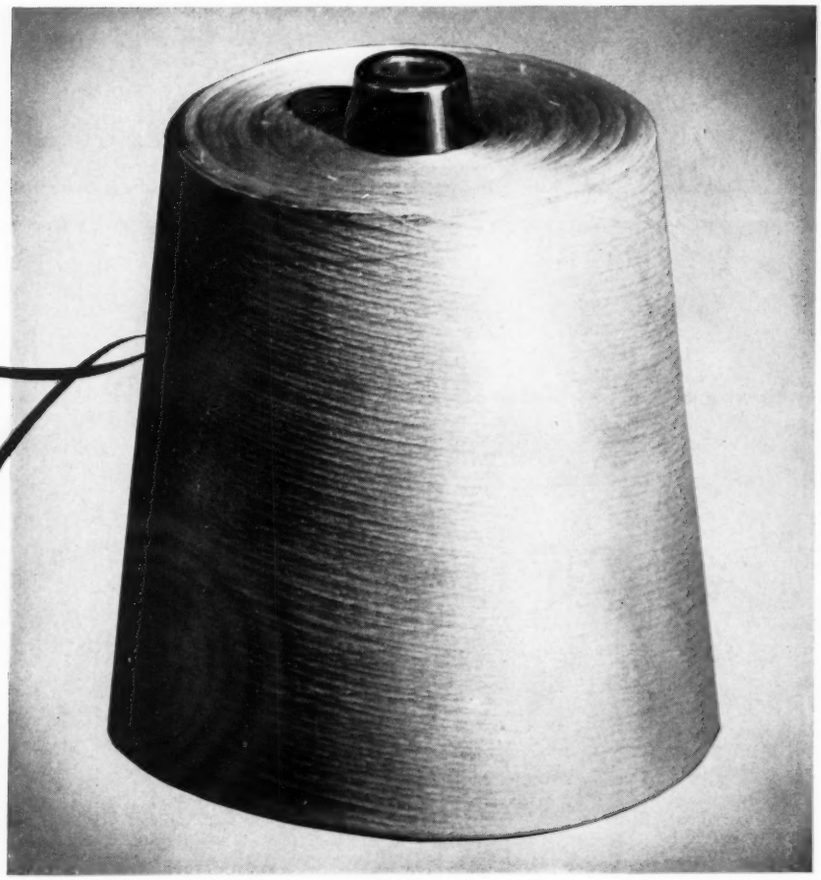

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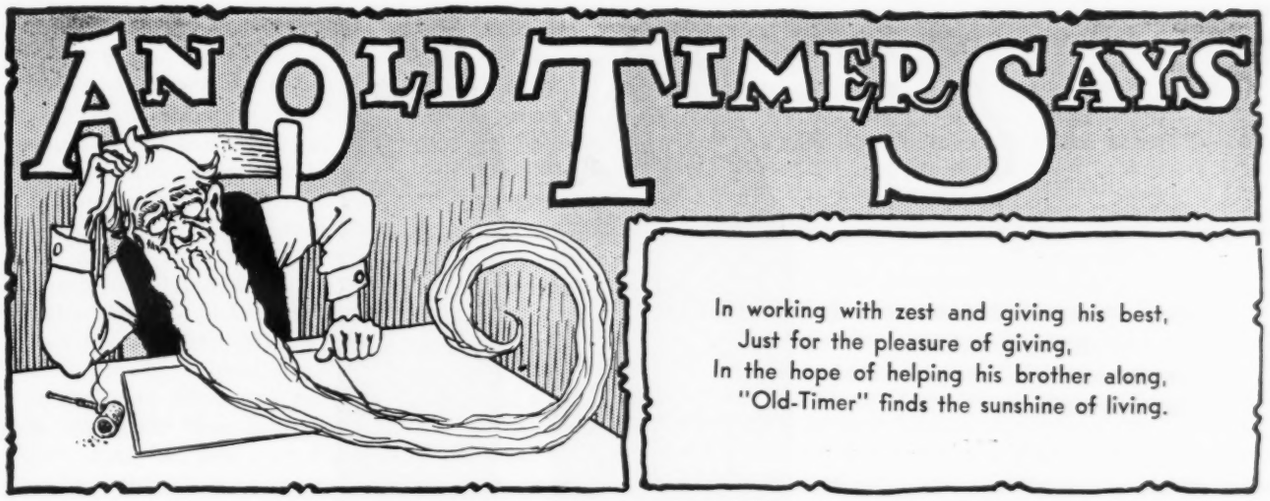

AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

# "Old-Timer" and "Jim" Go to Florida

(Since this article is written in conversational style, it should be borne in mind that these paragraphs in regular type represent OLD-TIMER'S part of the conversation; and that those paragraphs in *italics* represent the part of JIM and Mr. Jackson.)

Howdy-do, Mr. Jackson! (Jackson being the fictitious name of JIM'S boss.)

*Oh! Hello!* OLD-TIMER. *How's tricks?*

Well, Mr. Jackson, it looks like it would take a magician like Houdini, or a dozen Philadelphia lawyers, or something, to explain some of the tricks that are being played in the textile business right now.

*Yeah, guess you are about right there,* OLD-TIMER, *but what do you think is in prospect for us? You know an order even at manufacturing cost would not look bad at present.*

I suppose that is one way to look at it, Mr. Jackson, but when conditions get like they are now, and like they have been many times in the last 25 years, I try to console myself with the thought that the textile business has always been a feast or a famine proposition; always after a feast there has been a famine, and vice versa.

Naturally, each time we enter into the famine stage, it looks like the feast will never come again, but it always has, and my firm belief that it always will has caused me to try to take advantage of that period by doing everything possible to put my mill and my machinery in shape and thus beat my competitors to the feast.

*Suppose you try to be a little more specific,* OLD-TIMER; *your reasoning sounds O. K., but I'm not quite sure that I follow you.*

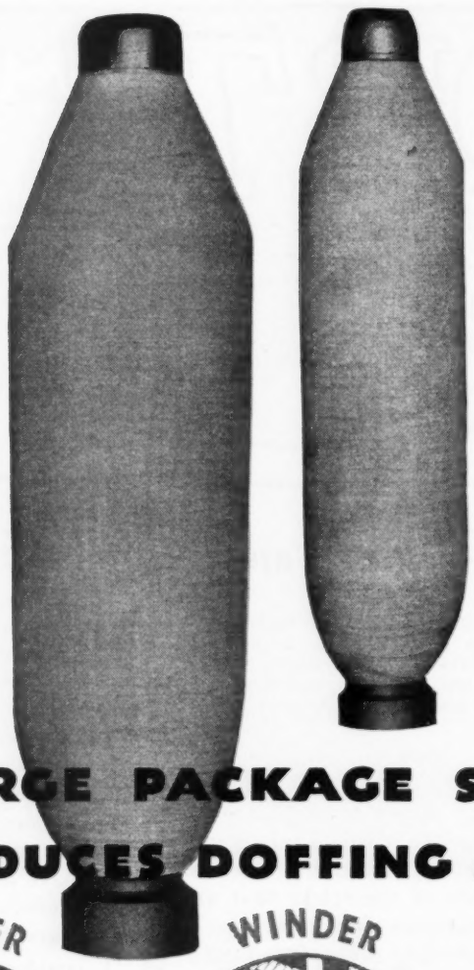
Well, all I can say, Mr. Jackson, is that I have seen but one mill man who I thought took full advantage of the period when his mill was not making money, especially if he had to curtail working hours. It all revolves around the old adage of buying your straw hats in the winter.

When a mill is on short time most mill presidents, treasurers, managers and superintendents seem to feel as though the mill would *never* make any more money, and they often compel overseers to operate their machinery without sufficient supplies, without sufficient payroll allowance for section men, etc., etc.,and thereby lower the operating efficiency of that machinery more during that period than during the time when they are making money. I have actually seen an overseer who, being pinned down about his payroll, would send his oiler out a day or so per week in order to get a few dollars off the roll, knowing that no one could see the injury his machinery suffered in consequence, and I have also seen them run sections with apprentices or oilers or smash hands in the hope of saving a few dollars on their payrolls.

I could give you numerous other instances to prove to you that many mills actually lower the production efficiency of their machinery during these curtailment periods, and, as I said before, if the management knew or even thought they would *never* get any profit-bearing orders again, and that they were only trying to prolong the time of actual liquidation, then I could understand the attitude that some of them take.

Of course any overseer or even section man or operative knows that when margins of profit get to where it is a job to keep out of the red ink, it is foolish not to conserve every dollar possible by cutting off any extra help that can be spared and save every dollar on payroll and supplies that can be saved. But, please let me make myself clear by saying that those savings should be classed as savings against production manufacturing costs, and there should be another classification for the expenditure of money chargeable possibly against *future* profits. By this I mean that I can see nothing except sound judgment and good manufacturing strategy in spending money, even when you are not making any, if a dollar spent then will bring a greater return than that same dollar spent during a time when you *are* making money.

Just a minute, Mr. Jackson; please let me illustrate my point by a simple example: You are losing money—no, I beg your pardon; I meant to say that a certain mill is losing money; it is running only three days per week—



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The H & B Large Package for cotton yarns can be spun in diameters up to 3½ inches and with traverses up to 9½ inches, containing from 2 to 3 times as much yarn as the ordinary small package.

Not only does this larger package reduce the number of doffs at the spinning frame but also at the twister, winder or spooler, since it provides a larger supply for the creel.

Large package spinning is particularly recommended as a part of our new Model B frame, which has the modern, heavy, box type head end with all gears extra wide faced; extra strong samsons; metal bound creel; special ball bearing and collar thrust for builder motion; interlocking ring rails; heavy duty spindles with large oil capacity (and roller bearings if desired); superpolished rings; and many other improvements.

Equip it also with H & B 4-Roller Long Draft and there is no better way to reduce spinning costs and to maintain or improve yarn quality.

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*You were right the first time,* OLD-TIMER, *but that's O. K. Go ahead. "A certain mill is losing money; it is running three days per week."*

Thanks, Mr. Jackson. You know, the first thing I would do if I had charge of that mill would be to have all my section men work those other two days the mill is closed down, and here is one of my reasons: Suppose you have a loom that needs a new rocker shaft and a new race plate—it will probably take a loom fixer a half day or longer to install a new rocker shaft and a new race plate and set that loom up properly for good operation by aligning the back box plates at the same time he is installing the race plate. If the teeth in the head gears are worn on the pick it would be an opportune time to turn those gears. Altogether there may be, and very likely is, a full day's work needed on that loom in order to put it in first-class operating condition. By doing that work while your mill is idle you lose no production. The fixer, under good overseership, can do more work per hour than when the mill is in operation with so many things to divert his attention and take up his time. However, instead of doing this, most mill managements will wait until they are in their most prosperous operating time and then consent for the superintendent to spend some money overhauling his looms. Now if you should explain to that mill president or treasurer or manager that to overhaul his looms you will have to stop his production the equivalent of one full day's production for *all* his mill, he would throw up his hands in holy horror. But that is what it amounts to; one day each for all his looms.

I'll ring off in just a minute, Mr. Jackson, but there is one more point I'd like to bring out, or rather ask you about, because I am not absolutely sure I am correct in my reasoning.

*Go ahead,* OLD-TIMER; *you have put me to thinking; take as much time as you like.*

Thanks, Mr. Jackson, and will you please tell me how much the maximum tax in 1937 could be on your profits after you have paid your regular dividends and bonuses, or whatever you have paid out that is nontaxable? The first two quarters of '37 could be classed as a feast period, could they not? That is, you were making more than a normal profit, were you not?

*Well, I suppose—say, this conversation is confidential, isn't it?*

Oh, sure, Mr. Jackson. I may use it as an illustration to some of my friends, but I certainly would not divulge your name or your firm's name.

*All right then,* OLD-TIMER, *we will just suppose your surmise is correct and that the first two quarters of '37 were a feast period, as you call it—*

Good, Mr. Jackson, and then the third period was not so very bad, was it?

*No, not nearly as bad as the fourth quarter, I would say.*

And it is a fact that it did not take all of your profit made during '37 to pay your dividends, bonuses, etc., isn't it?

*Now hold on,* OLD-TIMER, *you know in the mill business we must prepare ourselves against a rainy day and—*

Yes, I know that, Mr. Jackson, but will you now please answer my question as to the maximum tax you could be required to pay on that surplus profit?

*Well, let me see. You mean altogether?*

Yes, Mr. Jackson, altogether—total taxes.

*I believe it could possibly run up to about 30 per cent if—*

Never mind the ifs, Mr. Jackson. What I am trying to show you is that the day's work you should have done on that loom and the supplies you should have bought for it would only have cost you 70 cents on the dollar. I have seen very few mills that had as many card cans as they really needed. A car-load of cans would have cost you only 70 cents on the dollar; and that big 10-inch, 80-foot double belt on that motor drive in the basement that has been on there 15 years and has stopped your production several times when it had to be repaired during one of the feast periods when you were making good money; a new belt there would have cost you only 70 cents on the dollar. At that time JIM told me he had nine cards that he had been begging you to get new clothing for, and that new clothing would have cost you—

*Never mind about the card clothing,* OLD-TIMER; *you go right out in the mill and bring* JIM *here—*

Just a minute, Mr. Jackson; will you let me tell you what I came by here for?

*O. K., go ahead, but make it snappy; I want to have a talk with* JIM.

I am on my way to Florida for a little vacation, Mr. Jackson, and I wrote Jim last week to see if he would go with me, but he replied that the mill was on three days a week and his boss did not seem to be in a very good humor, and it was just out of the question for him to ask off.

*Hell, no!* OLD-TIMER, *he can't get off now. Bring him out here, I want to talk to him and I want you to stay right here while I am telling him some things.*

But, Mr. Jackson, this is 1938; the opportunity has passed now to use any of that 1937 money.

*Never mind, young man, or old man, I should say, I've got some ideas of my own, even if this is 1938; you go bring* JIM *in here.*

Yes, Mr. Jackson.

(EDITOR'S NOTE: For our readers' information, Mr. Jackson and OLD-TIMER are personal friends, having worked for the same firm several years. Therefore, OLD-TIMER feels as free to talk to Mr. Jackson, although he is president of the mill, as he does to JIM who is superintendent. JIM, as OLD-TIMER's readers know, has been a protege of OLD-TIMER's since OLD-TIMER had his first overseer's job.)

Hi-ya, JIM! The boss wants you at the office right away.

*What in heck you been talking to my boss about,* OLD-TIMER?

Never mind now, JIM, I'll tell you later. Come on; he seems to be in somewhat of a hurry. I'll go on up to the house and visit with your wife until you come to dinner.

(OLD-TIMER had no desire to go back to the office with JIM because he had a pretty good idea what Mr. Jackson's conversation with him would be. About two hours later here came JIM, almost in a run, to the house.)

*Whoops!* OLD-TIMER, *the boss gave me the clothing for those nine card cylinders and he told me to put in a requisition for the filling quills we have been*

(Continued on page 127)

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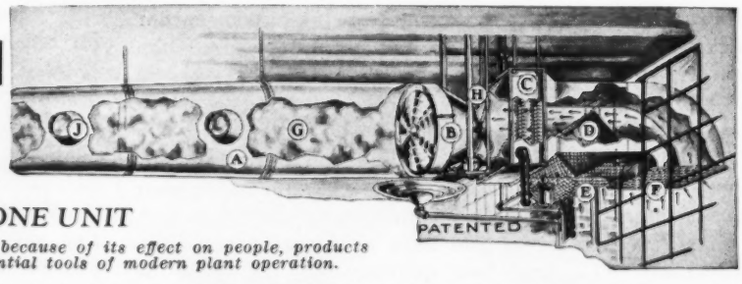


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# HOW OTHER MEN MANAGE

## Slashing and Tying-in Problems: End-for-End Lease

**Method of taking an end-for-end lease to give better results in the tying-in or drawing-in room . .**

A QUESTION CONCERNING SLASHING and tying-in or drawing-in came up in a mill recently, and the mill superintendent submitted this question to COTTON: "How can we take a lease on our our slashers to improve our drawing-in problem? We would like for our warps to come off our slashers with each end separated by an end-for-end lease. We are now running from 1000 to 2400 ends in the warps." This question was passed along to some of COTTON'S friends and light was thrown on the subject for this man as seen by the following paragraphs.

One man said that he had tried in an experimental way to take a lease at the warper, but found the results did not warrant the trouble encountered in so doing. He went on to explain that the ends can be kept straight and separate by the use of two strips of gummed tape in doffing at the slasher. He places the gummed strips of tape across the warps, about two inches apart, and uses tape about 2½ inches wide to give a good, firm grip on the yarn. The tape is put on the warps before the yarn goes under the tension rolls because this causes the tapes to stick to the yarn better. The warp is then cut between the two pieces of tape, leaving one piece of tape to go at the beginning of the next warp beam to give it a straight start, and the other going on the warp of the full loom beam.

The strip of taped warp at the beginning of the empty loom beam is held in place by hand when the slasher is started for one wrap of yarn and then it is held in place by subsequent wraps. The beam is then run on the loom until this slips, and there is said to be a minimum of waste.

The other strip, on the full beam, holds the warp ends straight for the tying-in process. He contends that at the tape is the straightest place of the ends in the entire warp, so instead of brushing them from the beam toward the end of the warp (or toward the tape) he brushes from the tape backward.

Another mill man replied to the question as follows:

The question regarding the taking of a lease on slashers to improve drawing-in problems is a subject that is important. We have had troubles along this same line, and while we do not consider our present condition perfect, we have helped some of the trouble.

Ideas may differ concerning just what an end-for-end lease is. Our method of leasing is to separate the upper section beams in the slasher creel from the lower beams with a large split rod on the frame near the cylinder. We have found it helpful to go from a 1½-inch to a 3-inch diameter split rod for this purpose. Then we separate the individual beams from each other with smaller split rods near the front of the slasher. All leases are carried through the slasher with strings and the split rods are inserted at the string.

The inquirer may be referring to the rolls or devices used by some mills to separate the yarn after it leaves the size box and before it goes on the cylinder. There are several devices for this and their effect is to let the yarn separate with practically no tension or pulling at the split rod. I have tried several of the devices but always had trouble with gumming up and getting bad results when this happened. I prefer to run the immersion roll near the top of the size in the size box, which seems to allow the yarn to break more easily at the split rod. A test can be made on this simply by running the immersion roll all the way down to the bottom and then bringing it gradually nearer the top, at the same time watching the yarn to see how it breaks at the split rod. We get the best results when the immersion roll is about half submerged in the size.

Another thing, it is a good idea to check the size mix. Sometimes an improper mix will give more trouble than any amount of improper leasing. At one time we had considerable trouble with a size mix in which a special type of gum was used that tended to make our yarn break very hard at the split rods.

Regarding proper leasing, it is our practice to run a string lease after every two warps on fine numbers and after every three warps on coarse numbers.

There is available a slasher comb which contains more dents; this is made possible by the design of the comb. We have used this comb and have found it helpful as it permits us to place several ends less in each dent, thereby holding the ends in a better position for the drawing-in or tying-in machines. The slasher tender can assist the tying-in man by run-

●

WE invite our readers to make use of this department for the discussion of any and all problems arising in the mill or finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

ning in on the comb just before doffing. This can be worked out between the tying-in man and the slasher tender.

To my mind, the most important contribution to the tying-in machine man's job is the liquid that is being manufactured for application to the yarn at the working point on the tying-in machine. When applied properly, this liquid affects the yarn in such a manner that whole warps can be tied without a single stop. In fact, if the warp is in good condition and the pattern also, when the liquid is used there is little stumbling, and practically no doubles are tied.

# Making Slub Filling

The following question appeared on page 99 of the November issue of COTTON, and so that the readers may follow closely the answers to it, the question is again repeated:

"I am interested and would be indeed grateful for any information your readers could furnish regarding the making of slub filling on a spinning frame. I have done some experiental work along this line with a motion that jumps the back and middle roll ahead, thereby making a bunch between the front and second roll. The middle rolls are unweighted and the break draft is 1.08. The roving is regular twist and the yarn is spun reverse. The results obtained have not been very satisfactory as the bunch is lacking in twist and is very weak and pulls apart very easily.

"It occurred to me that in the spinning of reverse twist slub filling there might be some advantage in the use of reverse twist roving instead of regular twist. It seems to me that this should help to make the bunch stronger than it would be with the regular twist in the roving. Have any experiments ever been made along these lines? If so, what results were obtained?

"I understand that sometimes slub filling is made by having the back and middle roll running constantly and stopping the front roll for a second or two to make the slub. Have the readers any information on just how this can be done and how this could be effected on a Mason frame?

"Any comments on making this type of filling with reference to break, drafts, weighting on unweighting the middle rolls, the type of twist necessary in the roving, and particularly about the making of slubs by stopping the front rolls will be most welcome.

"CONTRIBUTOR NO. 6727"

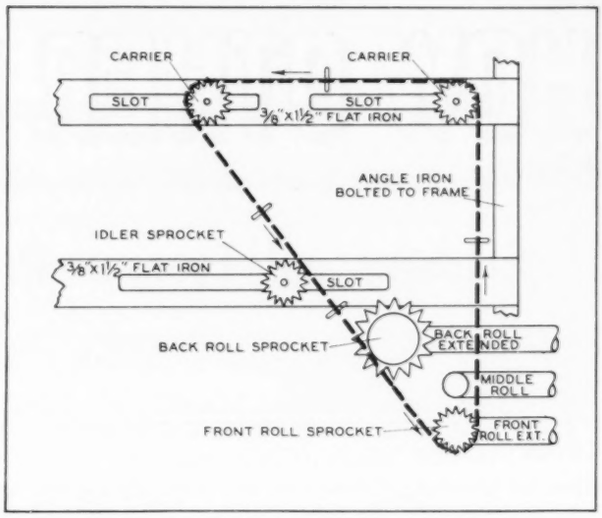
EDITOR COTTON:

In answering "CONTRIBUTOR NO. 6727" it is easy for me to sympathize with him because I know what difficulties he is up against in making slub filling. I am unable to help him in his manufacture of slub filling by stopping the front roll because I have never used this method. However, there is an attachment on the market, (name on request) which I saw and which seemed to be running smoothly.

I have used a simple device quite successfully which consists of a chain and pin drive carried on sprocket gears on the foot end of the spinning frame —any good mechanic can make one. I used a 9-tooth sprocket on the front roll, a 15-tooth sprocket on the back roll, along with two 11-tooth carriers and one idler sprocket gears. These are shown in the accompanying drawing. The back roll sprocket is double, with a loose collar riding between to support the chain as the pin strikes the sprocket, thus speeding up the back roll to make the slub between the back and middle rolls.

The pins in the chain can be set apart most any distance in order to provide the desired space or distance between the slubs. There are several things to be remembered when setting up a frame to make slub yarn and "CONTRIBUTOR NO. 6727" should notice these few pointers before setting his frames.

All the roll necks should be tight—without the




slightest bit of lost motion. Put double steady pins in all the gears in the draft chain, including the back roll gear, back and middle roll pinions, and the draft change gear. Secure a suitable crown with ratchet so that the crown gear may turn freely when the chain speeds up the back roll.

To hold the slub in the yarn it is necessary to put in more than standard filling twist; if 4.75 or 5.00 is used as the twist multiple the work should run satisfactory. The frame will have to be run much slower, for instance, the cylinder should run 650 r.p.m. and the spindles about 5,000 r.p.m. When considering the speed of the front roll, remember that when changing the twist gear the best twist per inch is determined by the twist gear that will give a correct speed ratio of the front roll to the back roll so that the pin in the chain will not strike the back roll sprocket a hard blow at one time and then a light blow the next, or slubs of uneven and unequal size will be the result.

The best slub is made with a comparatively short draft. I prefer a draft of about 6 in making 10s, using double creel roving; the single creel roving will not make a slub that is large enough. The break draft should not exceed 1.08. I have found 1.03 to work very well with a one-inch front roll, a 7/8-inch back and middle roll, running 15/16-inch cotton.

I believe that "CONTRIBUTOR NO. 6727" does not have enough twist in his yarn and that is why his slub will not hold. I do not see that reverse twist roving will do any good in making slub yarn; it makes no difference which direction of twist is used so long as plenty of twist is inserted in the yarn. I suggest 23 pounds of weight on all three lines of top rolls.

Again I will caution him that there must be no lost motion, especially in his rolls and gears. Any play whatsoever will produce weak places *behind* the slub.

CONTRIBUTOR NO. 6728

It is not enough that a man work hard—he must work in the right direction.

The man who thinks he has arrived, is already slipping.

# Answers on Yarn Variation

EDITOR COTTON:

"CONTRIBUTOR NO. 6740", who is running 15/16-inch to 1-inch Strict Low Middling or less cotton, making yarns from 7s to 45s, has asked a number of questions and I am glad to give him my opinion on them. The questions appeared on page 117 of the December issue of COTTON.*

1. (a) *Sizing yarn and percentage of allowable variation.* I did not know there were any set allowances for variation in yarn numbers, but, "CONTRIBUTOR NO. 6740's" variation of about 5 per cent is very good. Of course, all of us try to keep this variation as low as possible. Inasmuch as I have not answered definitely just what is an allowable variation, I will give some ideas which I think will help prevent such a high variation in the yarn.

I believe this man should open and blend his cotton as well as possible. He could get some hopper feeders and arrange them in his opening room so that at least three hoppers feed into each line of opening. He should then open as many bales of cotton at a time as possible, and feed from at least four bales to each hopper. This will give a mix of 12 bales of cotton to each line of opening; the more bales that can be mixed the better the stock will run. The hopper feeders will also open the cotton better and the opening machinery will do a better job of cleaning.

The pickers should be in good condition and the laps should be checked for yard-to-yard variation. This variation should not be over 1 per cent, and if it is, the pickers should be overhauled and all settings checked to see that they are correct. The card and drawing trumpets should be checked to see that they are the correct size for the size sliver being run. If the trumpets are worn the sliver will also be uneven and cause uneven yarns. Should the trumpets on the cards be worn badly, the card operators can make thick piece-ups and the end will not come down at the coiler head, but will go on through and make a thick place in the sliver.

I think the carder should be given a standard for the rovings to be made and he should stick to this standard as closely as possible. Then, if the cloth weights become too heavy or too light, the spinner can change the draft gear on the filling yarns to compensate for the difference. By this method he can keep practically the same hank roving in his spinning creel at all times, whereas, if he tried to keep the cloth weights from the card room by changing the drafts on his frames, he would have too much variation and cause uneven yarns.

(b) *Frequency of checking numbers.* I do not think it necessary to check yarn numbers more than twice a day, taking at least 8 to 12 bobbins at a time, two from each frame, trying at the same time to get the bobbins from different size roving packages in the creels. This procedure should not vary whether the yarn numbers be high or low.

2. (a) and (b) *Weighing finisher drawing, variation allowed, and method.* I don't believe it is necessary to weigh the drawing but once a day unless the numbers are being kept by changing at the drawing, and in this case, twice a day is sufficient. The average weight of four ends should be used to get the grain of sliver, but each should be weighed separately so that if there is very much variation from end to end it can be remedied.

3. *Creeling the drawing for best results.* Providing there is adequate floor space, the best way to creel drawing is as each can is emptied, have the frame tender put the end up before starting the frame and by no means should he flip or throw the end up. Of course, when using this method of creeling it is necessary to space the cans so that there is an alley between each two rows of cans, allowing the operative to get up close to the back of the frame in putting up the end. Always set the full can at the back of the line to keep the sliver from dragging over other sliver and stretching. If the floor space is not available it is better to creel a whole frame at a time.

4. (a) *Using picker laps above and below standard or running cards with different drafts to compensate for difference in weight.* I believe "CONTRIBUTOR NO. 6740" will run into much trouble by setting aside picker laps that are above or below the standard weight and trying to run them on cards set aside for the purpose. The best way to take care of these laps is either to run them over on a set-back machine or else to throw them back in the picker hopper and run them through the process again. If there are many laps that have to be run through the set-back machine because of unevenness, then the pickers should be overhauled.

(b) *Weight of sliver practical to run on card.* It is considered that 5 or 6 is the best draft on drawing, but many of us have to vary from this practice. Concerning the heaviest sliver practical to run on a card, I think almost any grain sliver could be run if the correct settings and draft are used on the card. I do not believe extremely heavy sliver will cause any excessive amount of unevenness in the drawing.

CONTRIBUTOR NO. 6749

*Another answer to these questions appeared on page 98 of the March issue of COTTON.

## Ready Reference Library

THERE is one mill man, to our knowledge, who not only retains the material appearing in COTTON and other textile trade papers, but who places the technical articles in a notebook according to their classification, such as carding, spinning, weaving, management, etc. He has several loose leaf binders, and after he has thoroughly read and digested his magazine, he cuts the articles out of the paper and places them in the loose leaf binders under the proper heading. For instance, one of the notebooks pertaining to carding has blueprints of the various machines in it, a complete set of articles by Fay H. Martin, which have appeared in COTTON from time to time, various subjects from the "HOW OTHER MEN MANAGE" department, which appealed to him, etc. Other binders contain information clipped from the magazines and have as headings spinning, combers and lap winders, loom fixing, general weaving, slashing, rayon, textile research, air conditioning, safety, and modernization and maintenance. These loose leaf binders, which are added to from time to time, form a valuable ready reference library for the mill man, currently brought up to date from the editorial material of his trade papers.

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# Plumbing New Spindles

EDITOR COTTON:

In answer to "CONTRIBUTOR NO. 6735", who has asked on page 121 of the December issue of COTTON whether it is better to plumb new spindles at both the top and the bottom immediately upon starting up the frame or to run the ring rail almost to the top, set the rings, and let the frame run for 30 to 60 days before plumbing, I would strongly recommend that new spindles be plumbed both top and bottom. Then after they have been running three months, plumb them again. After this, a schedule should be adopted so that all spindles are plumbed at least once a year, when the mill is running 80 hours a week. In some cases where frames are run on coarse numbers, it is better to plumb them every 6 months because there is more doffing and the spindles get out of plumb more often.

If spindles are set at the top only, they get adapted to the bolster in a given position and then when they are plumbed at the bottom and the top there is difficulty in pulling the spindle in line. Also, the paper used in plumbing the first time is chewed up and the cost of plumbing is increased because it must be done over.

When spindles are plumbed at any time they should be plumbed accurately. It does not pay to rush the work of spindle-plumbing.

CONTRIBUTOR NO. 6788

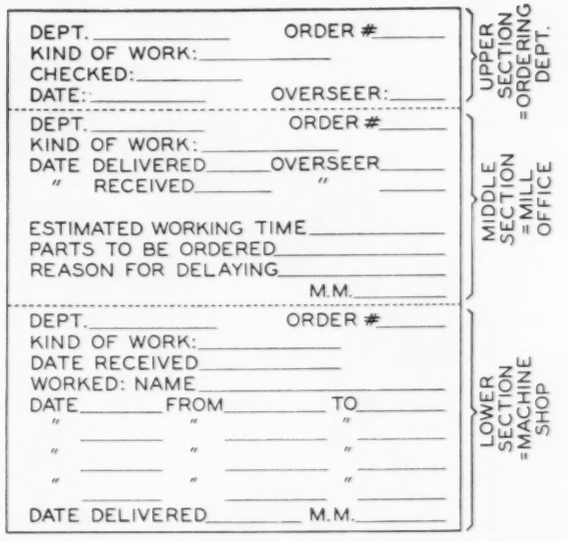
Four other answers to this question appeared on page 149 of the February issue of COTTON.

# System in Machine Shop

EDITOR COTTON:

When the machine shop must take care of repair and maintenance work in a large mill, it is necessary to have some system for scheduling the work for each department, and for scheduling the total possible work that the machine shop does. It is just as necessary to have organization in the machine shop as it is in the production departments of the mill.

The accompanying form shows a perforated ticket for routing repair work through the machine shop, and by use of this ticket the mill office can at all times know how repair work is progressing. At the same time, the ticket can be used as a bookkeeping record for distributing repair costs to the various production departments. The upper section of the ticket remains in the department ordering the work. Besides having a consecutive order number and date, it carries a short notation concerning the work to be done and bears the signature of the overseer. The middle section goes to the machine shop with the part to be repaired and from the machine shop is sent daily to the mill office. It contains the same information as given on the top part of the ticket, with the addition of the estimated working time—filled in by the master mechanic, the parts to be ordered, and a note concerning any expected delay. The lower section remains in the machine shop while the work is being done, and when the job is completed goes to the mill office.




As long as only the middle part of the ticket is in the mill office, the work is in process, but when the lower part is sent to the office, the work is completed and the middle ticket is cancelled.

Different colored tickets may be used for each department in the mill, such as green for weaving, blue for spinning, etc.

By such a system, the mill office can inform the overseer of the department just when his work has reached the machine shop and when he may expect it to be completed. The mill office has continuous knowledge of all jobs to be done in the machine shop. The lower part of the ticket will show the time spent on the job. The system is applicable to both large and small plants.

The master mechanic has a form for recording the working time per week of each of his men. As soon as he has noted the time required for the job on the lower part of the ticket, he places this figure on his chart, which at the end of the week gives a working sheet for each man in his department.

From these working sheets the cost engineer summarizes the hours worked by the machine shop for all departments of the mill, and thus distributes the cost of the machine shop accordingly.

CONTRIBUTOR NO. 6780

## Authority as a Club

Two men were pressing their demands for satisfaction of a grievance upon their superior. They were very insistent and he was opposed to their request.

He finally lost patience and told them with some heat, "After all, don't forget, I'm boss here, and what I say has to go!"

That appeared to win the argument for him. But that was all it won. It did not win him the agreement of his men. It only served to end their conversation. They left him with a feeling of resentment and greater antagonism than before.

He had suppressed them by his authority, but he had undoubtedly planted seed for future difficulty.

—"How to Handle Grievances"; Elliott Service Co., Inc.

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## An Old-Timer Says

(Continued from page 119)

*needing, and, bless my soul if he didn't tell me I could go to Florida with you, but that I must be darn sure to get back here by the time the clothing gets here for those nine card cylinders. Come on, let's get out the old tin Lizzie and grease her up. We are going places!*

Why not go in my car, JIM? You know mine rattles the loudest, and I don't have to blow my horn as much as you do for people to get out of the way.

**Five o'clock next morning:**

*Well,* OLD-TIMER, *we are on our way, and now where are we going; what part of Florida?*

Well, JIM, I thought we would see the West Coast this time; I've never been on the West Coast. Have you?

*No, I haven't, and I think that's a good idea, and suppose we stop at Lakeland. I've heard a lot about that place, and it is right on our way to Tampa, and Tampa, the cigar-manufacturing town, is not far from St. Petersburg, where they say all the old people go, and I suppose that is the place you should stop.*

Oh yeah, smart guy, eh? Well, you don't look much like a spring chicken yourself!

*There's the Florida line,* OLD-TIMER, *we are now in the land of sunshine.*

Yeah, I heard you, JIM, but darned if it doesn't look like it's going to pour down rain, to me. Better get out and put that oil-cloth over the hood.

*Let her rain and see if I care,* OLD-TIMER. *I got the card clothing for my nine cards, and—*

Never mind the shop talk now, JIM, we are off for a vacation, and we will just leave the mill back there. I am sure it will be there when we get back.

*Isn't that a pretty body of water over there!*

Yes, JIM, we must be getting close to Lakeland; there's another one, and look ahead of us, that looks like a big one! See how round and symmetrical they are; looks like the ground just sank down in that place and then the hole filled up with water.

*This folder says there are 15 lakes in the city limits,* OLD-TIMER. *Doesn't look like they would have room for anything else, does it?*

Read on, JIM, what else does it say about Lakeland?

*Well, it is almost in the center of Florida. Polk County produces more than one-third of the citrus fruit grown in Florida and 85 per cent of the pebble phosphate.*

Well, it surely looks like it, JIM. We have been driving through orange and grapefruit groves for miles and miles. Just look at them! And I suppose those high banks of dirt we have been thinking were where they were dredging out streams are just piles of dirt they remove to get the phosphate out.

*Listen,* OLD-TIMER, *here's what we are looking for: "Lakeland's Civic Center. Open to the public. Shuffle-board courts, tennis courts, lawn bowling, horse-shoe lanes, Roque—"*

What's that, JIM?

*Heck if I know,* OLD-TIMER, *but it looks like these folks don't do anything but play, doesn't it?*


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Look over there, JIM; isn't that some beautiful sight! Look how green those fairways and putting greens are!

*Sure, I knew you would see a golf course if there was one anywhere around, and here is what it says about that place where the golf course is: That large building is the National Home of Carpenters and Joiners of America; the buildings and grounds cost $3,000,000.00, located in a tract of 2,000 acres. The aged members of this organization have one of the show places of the country; a sporty golf course, shuffleboard, fishing, roque and other sports. The building contains a theater, seating 1,444. A fine pipe organ, a modern hospital, a dairy, laundry, poultry yard, etc., etc., over 900 acres of orange and grapefruit groves—that reminds me,* OLD-TIMER, *you remember when you were an active officer in the Southern Textile Association how you kept talking to us about forming some kind of association that would pay an overseer or superintendent so much per month while he was out of a job?*

Yes, JIM, and I still dream about it. Of course I ran into all kinds of complications with insurance laws, etc., and, getting no support from the other members of the association, I did not get anywhere with the idea, and now, to see such a wonderful place as that carpenters' home, it only confirms to my mind that some mill man, one who has proven to the public that he is also a good business man, could still get something like that started for the benefit of overseers and superintendents.

**(Two days later).**

*Say,* OLD-TIMER, *look at all those smoke stacks! Guess we are coming into Tampa. Looks like a big city, and listen at those whistles! Suppose they have any cotton mills down here?*

No, JIM, those are boat whistles you hear, and it is only a few miles further to St. Petersburg, which is on the Gulf of Mexico. We will go through Ybor City as we drive into Tampa. Ybor City is a part of Tampa, and there is where most of the large cigar factories are.

OLD-TIMER and JIM, after seeing the sights in Tampa, went on to St. Petersburg, doubling back by Sarasota, where the Ringling Brothers and Barnum and Bailey Circus has its winter quarters; next, on to Lake Wales to see the Mountain Lake Sanctuary and Singing Tower, or Bok Tower, and then, as it was about time for JIM's card cylinder clothing to come in, they headed back for home.

### When Is a Grievance a Grievance?

A worker complained to his boss that two men in his department had quarreled with him on a personal matter outside the plant. They were carrying their spite onto the job and were making things unpleasant for him while at his work. He appealed to the boss to "straighten those fellows out."

"I don't see why I should mix up with your outside rows," the foreman told him, refusing to have anything to do with the situation.

1. Did the man have a legitimate grievance?
2. Should his boss have taken a hand?
3. How would you handle this situation?
4. When is a grievance really a grievance?

—"How to Handle Grievances"; Elliott Service Co., Inc.


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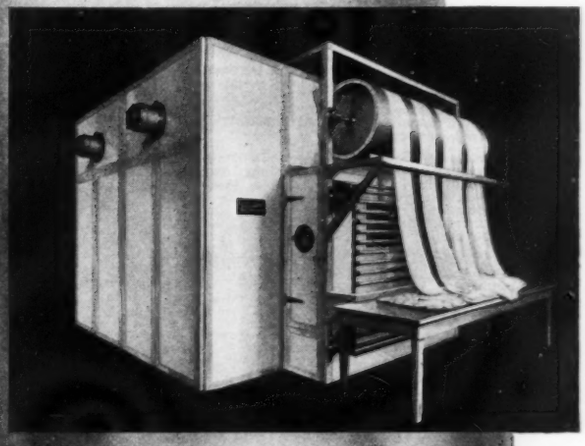

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**261. The Brown Moist-O-Graph**—16 page booklet describing the Brown Moist-O-Graph which measures, records and controls the moisture content of cotton warp yarns. The Brown Instrument Company, Philadelphia, Pa.

**264. American Pressed Steel Trucks**—16 page illustrated catalog describing the American line of trucks and industrial truck wheels. American Pulley Co., Philadelphia, Pa.

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**269. Stainless Steel Equipment for the Dyeing and Textile Industry**—Attractive four-page folder describing the Blickman line of dyeing equipment. S. Blickman, Inc., Weehawken, N. J.

**271. The New American Adjustable Diameter Wedgebelt Pulleys**—Illustrated leaflet describing the American adjustable diameter sheaves designed to produce the best performance in all types of V-belt driven textile machinery. American Pulley Co., Philadelphia, Pa.

**272. Where to Buy Monel Metal Textile Equipment**—Attractive booklet which lists the names and addresses of experienced fabricators of Monel Metal equipment for the textile mill. The International Nickel Company, Inc., 67 Wall St., New York, N. Y.

**273. Debeviose Maintenance Paints**—38-page illustrated manual describing and illustrating the Debeviose line of paints for industrial use. The manual features a complete line of paints for the interior and exterior of textile plants and mill villages. The Debeviose Company, 968 Grand St., Brooklyn, N. Y.

**274. Card Sliver Drying Machine**—attractive six-page folder describing and illustrating the new stienen card sliver drying machine. The machine is used for cotton sliver as well as rayon sliver. American Obermaier Corp., Long Island City, N. Y.

**275. Vacuum Lint and Dust Collector**—attractive folder describing the patented vacuum lint and dust collector for automatic spoolers, warpers nappers and textile machinery. The Textile Shop, Spartanburg, South Carolina.

**276. Continuous Vulcanization of Transmission Belting**—12-page booklet containing facts based on data assembled during the development of this new principle of belt manufacture and the performance of the product in actual service. Boston Woven Hose & Rubber Co., Cambridge, Mass.

**277. Bulldog Rubber Tension Roll Covering**—attractive four-page folder describing the new scientifically correct product designed for taking off all synthetic fabrics, natural silks and fine cotton goods. Boston Woven Hose & Rubber Company, Cambridge, Mass.

**278. Textile Testing Laboratories**—a 10-page illustrated booklet describing a modern textile testing laboratory and pointing out the necessity for laboratory air conditioning systems. Ask for bulletin 136, Parks-Cramer Co., Fitchburg, Mass., and Charlotte, North Carolina.

**279. When Cleaning's Automatic, a Spinner's Free to Spin**—a 10-page illustrated booklet dealing with the Parks automatic traveling cleaner. Ask for bulletin 1036. Parks-Cramer Co., Fitchburg, Mass., and Charlotte, N. C.

**280. Why do they open Windows**—a 10-page illustrated booklet which deals with the Parks automatic airchanger—a patented combination of forced air change and direct humidification in balance—all under control of automatic humidity regulators. Ask for bulletin 637. Parks-Cramer Co., Fitchburg, Mass., and Charlotte, N. C.

**281. Sealed**—Showing how dirt and dust shorten life and destroy accuracy of bearings and importance of sealed bearings to keep dirt out and to keep lubricants in. New Departure Division, General Motors Corp., Bristol, Conn.

**282. Ra-Tox Ventilating Shades for Industrial Sash**—Bulletin giving details on this and other extremely economical and efficient equipment. Hough Shade Corp., Industrial Shade Division, Janesville, Wisc.

**283. Postal Guide and Envelope Catalog**—Answers every question regarding mailing, postal and shipping rates. Atlanta Envelope Company, Atlanta, Ga.

**284. Morton Nickel Iron Quick Opening Handle Gate Valve**—Illustrated leaflet describing the new Morton Valve for dyeing machines, pipe lines, steam and water lines, boiler blower valves and throttle valves. Morton Machine Works, Columbus, Georgia.

**285. An Unusual Unit of Equipment**—Attractive folder describing and illustrating the Moccasin principle of oil distribution. Moccasin Bushing Co., Chattanooga, Tenn.

**286. Tricon W-30**—Study of wetting agents and their activity with recommendations for textile processing. Rohm & Haas Co., Philadelphia, Pa.

**287. New American Pulley Motor Base Catalog**—an attractive new illustrated catalog describing in detail construction and application of new tension control motor base. Includes data comparing performance of drives with and without tension control motor base and applications are shown for both flat and v-belt drives. American Pulley Co., Philadelphia, Pa.

**288. Nopco Softeners and Wax Finishes**—14 page booklet describing the various Nopco Products for finishers of cotton goods. National Oil Products Co., Harrison, N. J.

**289. Caustic Soda Bulletin**—a data and reference book designed for the user of caustic soda. Complete with charts, drafts and formulas. Pennsylvania Salt Mfg. Co., Philadelphia, Pa.

**290. Hyatt Roller Bearings on Textile Machinery of All Kinds**—34 page booklet which describes and illustrates how Hyatt bearings are being applied to textile Machinery. Hyatt Bearings Division, Newark, New Jersey.

**291. Wolf Products for the Textile Trade**—Illustrated booklet describing the Wolf line of chemicals for the printing, dyeing, sizing and finishing of all textile fabrics. Jacques Wolf & Co., Passaic, N. J.

**11. Whitinsville Rings**—16 page illustrated booklet describing ring manufacture, measurements, types, uses. How to determine flange sizes. By Whitinsville Spinning Ring Co., Whitinsville, Mass.

**29. Continuous Card Stripper**—A 20 page booklet describing in detail continuous card strippers, their advantages, the power required to operate, etc. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

**30. Lubrication of Textile Machinery**—32 pages illustrated. Data covering the economical lubrication of all textile machines. New York & New Jersey Lubricant Co., 292 Madison Ave., New York, N. Y.

**38. Sleaziness in Full Fashioned Knitting**—Illustrated survey with samples of fabric showing causes of sleaziness and methods to be employed in eliminating it.—By Textile Machine Works, Reading, Pa. (This company also issues parts catalog for Reading full fashioned machines with general information on subject of full-fashioned knitting.)

**55. Interpretation of Analysis for the Layman**—An eight page booklet explaining what the various items used in fatty oil and sulfonated oil analysis

*CONTINUED ON PAGE 132*

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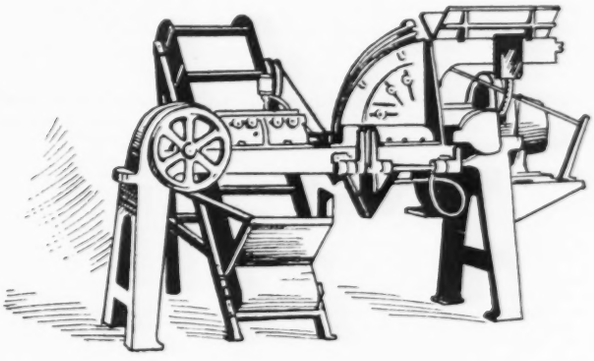

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# HELPFUL BOOKLETS FREE...

*Continued from Page 130*

mean, enabling the ordinary textile man without chemical education to interpret the various chemical analyses. National Oil Products Co., Harrison, N. J.

**62. Rubber Products for the Textile Industry**—A 40 page booklet giving a wealth of information on the proper selection, installation and operation of rubber belts, together with charts, showing horsepower rating, pulley sizes, V-belt sizes, also information on all types of hose and rubber covered rolls used in the textile industry. Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc., Passaic, N. J.

**64. SKF in the Cotton Mills**—A twelve-page booklet showing the advantages in power consumption, increased production, savings in lubrication, increased yarn breakage strength to be secured through roller bearing spindles. SKF Industries, Inc., Front St. and Erie Ave., Philadelphia, Pa.

**65. Bulletin No. 500. Cooper-Hewitt Industrial Illumination**—booklet explaining in detail the importance of good lighting and the necessity of proper quality as well as proper quantity of light. General Electric Vapor Lamp Co., Hoboken, N. J.

**70. Fafnir Ball Bearings for One Process Pickers**—outlining the advantages of ball bearings in guaranteeing smooth, accurate motion, particularly on eveners, as well as uninterrupted production, ease of operation and cleanliness of bearing units throughout the one-process pickers. Fafnir Bearing Company. New Britain, Conn.

**72. The Merrow Butted Seam**—A 16-page booklet defining and illustrating the Butted seam, describing its properties and outlining some of the advantages to be gained by its use in Textile fabrics. The Merrow Machine Co., Hartford, Conn.

**77. Bulletin S 200**—Illustrating and describing the new Reeves Variable Speed Drive for spinning and twister frames, explaining its many distinct advantages and giving charted results of exacting tests. Reeves Pulley Company, Columbus, Indiana.

**88. Dayton Cog Belt Catalog**—A 32 page booklet full of vital information on power drives, plainly and simply assembled and arranged so that anyone can select the proper standard drive for any condition. It also provides data for the calculation of drives where acquired. The Dayton Rubber Mfg. Co., Dept. C-11, Dayton, Ohio.

**94. New Development by Onyx**—Eight page booklet describing and giving uses of new developments in sulphonated aliphatic compounds . . . called Aliphatic Ester Sulphate and Glyceryl Sulphates. Onyx Oil & Chemical Co., 15 Exchange Place, Jersey City, N. J.

**106. Cotton System Warp Sizing on Multiple Cylinder Machines**—a folder showing the advantages of this type of machine in making warps of acetate and other synthetic yarns and spun silk. Charles B. Johnson, Paterson, N. J.

**107. Complete Information on Alemite Lubrication**—Showing how costs can be reduced through proper lubrication. Alemite Corp., 1828 Diversey Blvd., Chicago, Ill.

**109. Some Properties of Starch and Dextrine**—Explaining certain fundamental properties of starch and its derivatives and their action when heated and agitated. Stein, Hall & Co., 285 Madison Ave., New York City, N. Y.

**110. 3-In-One Oil for Industrial Uses**—showing the many industrial uses and advantages of this oil. A. S. Boyle Co., 1934 Dana St., Cincinnati, Ohio.

**116. Arcy**—Telling in an interesting way the story of Arcy, which completely liquefies ordinary thick boiling pearl starch, and its many advantages. Drake Corporation, Norfolk, Va.

**117. Anti-Friction Bearings as Applied to Spinning, Drawing and Twisting Frames**—This bulletin shows with detailed drawings how a simplified design of roller bearing applications is made to replace the plain babbitt bearings and lists the advantages that are gained. It deals primarily with better continuous production and in consequence freedom from equipment care and repairs. Hyatt Roller Bearing Co., P. O. Box 476, Newark, N. J.

**119. The World's Finest Sewing Machines**—a condensed catalog giving details of the various Willcox & Gibbs sewing machines. Willcox & Gibbs Sewing Machine Co., 658 Broadway, New York, N. Y.

**120. Goodyear Mechanical Rubber Goods Catalog**—40 page catalog giving practical information and tables helpful in the selection of the proper belting, hose or packing to suit the requirements of the mill. Goodyear Tire & Rubber Co., Akron, Ohio.

**122. Water Filters and Filtration Equipment**—Containing complete description of the chemical processes involved in the coagulation and precipitation of foreign matter, the removal of iron, oil, manganese, from water and the production of clean water suitable for the textile industry, together with tables of specifications for standard filters, and information showing the extra profits to be made by the mill through reduction in costs and process difficulties, through removal of undesirable impurities in water. Permutit Company, 330 W. 42nd St., New York, New York.

**128. Houghton's Hand Book for the Hosiery Dyer**—This book contains the result of 69 years of experience in research and development of processing materials for the textile industries, together with a wealth of other data useful to every hosiery dyer. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

**130. Three New Textile Scouring Agents**—This 32-page book gives many valuable formulas for the use of Houghton's Wonder Powder—a new type of colloidal detergent—in fulling, scouring and finishing nearly all types of woven and knit goods. Also contains several pages of valuable reference and conversion tables. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

**134. STA-PUT Lubricants**—A brief description of an entirely new line of tough film lubricants which not only gives greater protection to bearings but eliminates oil drip and reduces lubrication costs. STA-PUT Lubricants are made in grades to suit all types of textile machinery. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

**139. Textile Detergents—Theory of the use of alkalis and control of pH**—This 32 page booklet explains in simplified manner for the benefit of the layman the chemical processes that take place in using textile detergent in the finishing of textile goods. It contains many useful tables and data. Detergent Products Corp., Peachtree Bldg., Atlanta, Ga.

**141. V-Belt Engineering Data Book**—Over 50 pages of pertinent engineering information including data on selecting a V-belt drive design of special V-belt drives, numerous standard tables, charts and belt and sheaves list prices. Manhattan Rubber Manufacturing Div. of Raybestos-Manhattan, Inc., Passaic, N. J.

**152. Plant Checkup List**—Crane Co., 836 South Michigan Ave., Chicago, Ill.

**154. Johnson Bronze Bulletin No. 340**—showing over 600 sizes Johnson general purpose bronze bushings. Johnson Bronze Co., New Castle, Pa.

**155. Link-Belt Catalog 1574 on the P. I. V. Gear**—giving details of this positive variable speed control. Link-Belt Co., 307 N. Michigan Ave., Chicago, Illinois.

**156. Link-Belt Engineering Data Book No. 125**—showing features and giving engineering data on Link-Belt silent chain drive. Link-Belt Co., 307 N. Michigan Ave., Chicago, Ill.

**157. Grading Rules and Complete Specifications for Laying and Finishing Maple Floors**—Maple Flooring Manufacturers Association, 1794 McCormick Bldg., Chicago, Ill.

**163. Roto-Koner**—Bulletin describing the new No. 44 Universal Winder, known as the Roto-Koner for winding knitting yarns, which has many new and distinctive features. Universal Winding Company, P. O. Box 1605, Providence, R. I.

**164. Johnson Rotary Pressure Joints**—Bulletin describing the rotary pressure joint which requires no packing, no lubrication and no adjustment, giving installation and maintenance instructions, types, sizes, dimensions and prices. The Johnson Corp., Three Rivers, Mich.

**166. Precision Winding**—An interesting 30 page booklet on rayon yarns and winding, designed for weaving and finishing mills using silk and rayon. Universal Winding Co., P. O. Box 1605, Providence, Rhode Island.

**168. The Tube-Tex for Tubular Knit Goods**—Bulletin describing this modern machine which extracts, processes, dries, conditions and folds in one continuous operation, lowering costs, saving labor, power, space and waste. H. W. Butterworth & Sons Co., York and Cedar Sts., Philadelphia, Pa.

**170. Gates Textile Accessories**—showing the increased efficiency and economy to be secured through the use of Gates cone belts, evener belts, card bands and loom binder cushions. The Gates Rubber Company, Denver, Colo.

**171. Design of V-Belt Drives**—48 page booklet full of valuable tables and data showing the type, number and design of V-belts that will give the greatest efficiency on each particular drive. The Gates Rubber Company, Denver, Colorado.

**176. Sonoco Products**—A 60 page illustrated booklet giving descriptions, specifications and charts of the many Sonoco products, including bobbins, cones, tubes, cork cots, roving cans, spools, rolls, etc. Sonoco Products Co., Hartsville, S. C.

**180. These Extra Cushion Cork Cots Offer Six New Advantages**—a 6-page folder which tells the story of the new Armstrong Extra Cushion Seamless Cork Cot from the viewpoint of the mill man. The folder describes HOW the new cot is of advantage to mills spinning cotton yarn; WHY it is better, and something about the method of manufacture, and also gives PROOF in the form of some tests that have been made with this new roll covering material. Armstrong Cork Products Co., Textile Division, 960 Arch St., Lancaster, Pa.

**183. Schieren-izing**—describing leather belt manufacture from the selection of hides through the various processes to the final tests, also showing illustrations of belts with unusually long service lives. Chas. A. Schieren Co., 31 Ferry St., New York, New York.

**184. Speed Control Handbook T-35**—new reference book in variable speed control, said to be the most complete and helpful book on this subject ever published, 112 pages and more than 200 illustrations of interest to every production executive, purchasing agent, superintendent, overseer and master mechanic. Reeves Pulley Co., Columbus, Ind.

**185. Dulux—The White Finish That Stays White**—New book describing the new ten-point finish for factory walls and ceilings, the finish that stays whiter, stays cleaner and stands repeated washings. E. I. du Pont de Nemours & Co., Finishes Division, Wilmington, Del.

**186. F-7 Feeder Bulletin** — Describing the better blending that is secured and the important cleaning operation that is added by using F-7 feeders in place of bale breakers. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

**187. The Wildman Single-Head Full-Fashioned Hosiery Machine**—Literature on request from the Wildman Mfg. Co., Full Fashioned Division, Norristown, Pa.

**188. Form 374**—This form enables you to gather your own cost data on your sewing machines and determine whether new Union Special Machines will show big savings. Furnished free by Union Special Machine Co., 400 No. Franklin St., Chicago, Ill.

**190. Warp Conditioning Units for Synthetic Yarn Slasher**—booklet giving full details will be sent free to mill men who write on their company letterhead. Chas. B. Johnson Co., Paterson, N. J.

**191. The Bahnson Humidifier**—bulletin describing Bahnson Humiduct system which combines humidifying, heating, ventilating and air conditioning all in one unit, will be sent free on request. The Bahnson Co., Winston-Salem, N. C.

**198. The Perfect Loom Let-Off**—Folder pointing out the advantages of the new asbestos friction loom let-off and giving specifications and price list. Fiber Mfg. Co., Newton, N. C.

COTTON, Grant Bldg., Atlanta, Ga.

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# KNITTING SECTION

## EDITORIAL

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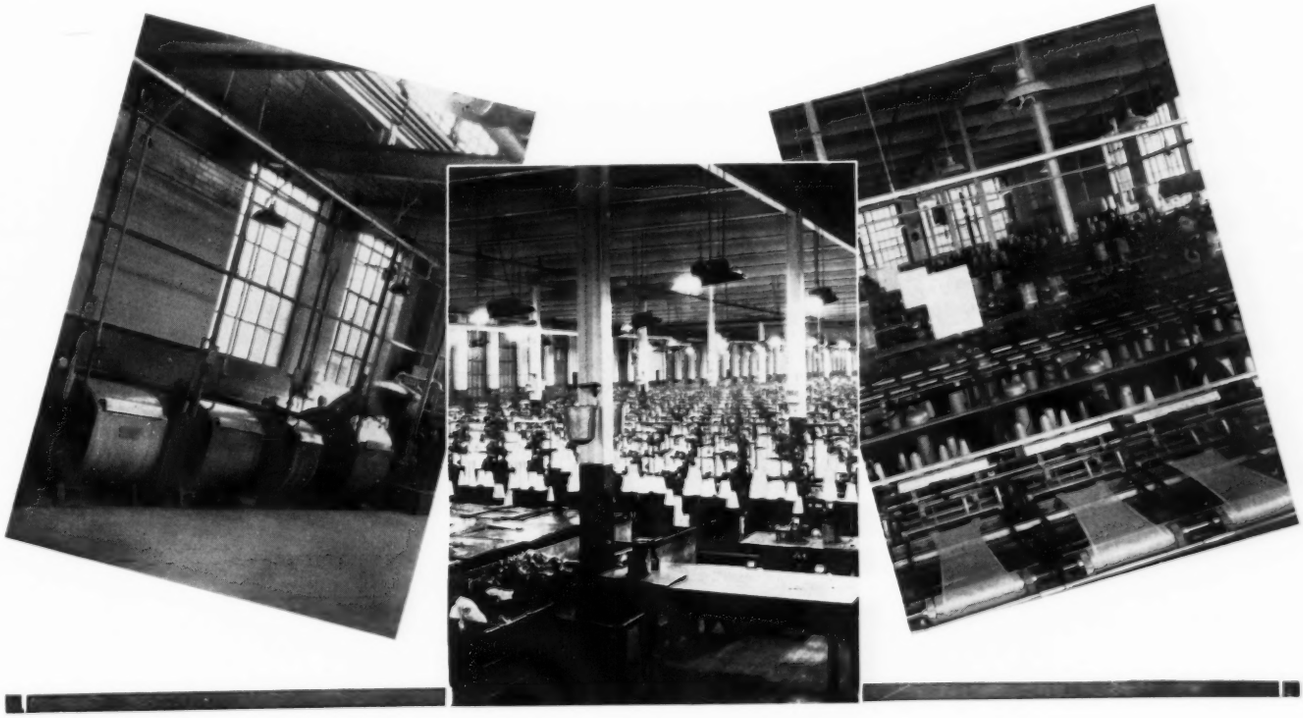

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● The new Chain Striper is the latest of Scott & Williams' many contributions to the efficiency of your work as a Knitting Machine Fixer—and to the welfare of your Knitting Mill.

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What would the new Chain Striper mean to you? We invite you to examine it at the Knitting Arts Exhibition in Philadelphia, April 25-29 inclusive.

Further information regarding this and other Scott & Williams' helps for you will be sent on request.

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## Everything in Readiness for the

# KNITTING ARTS EXHIBITION

THE 34th Annual Knitting Arts Exhibition, which will open its doors to the entire knit goods industry on Monday, April 25, at the Commercial Museum in Philadelphia, Pa., will, for the third consecutive year, establish a new all-time record in the amount of exhibition space taken by the many and various businesses which supply the knit goods manufacturers in the United States and Canada with their needs. Last year's record for the amount of space sold was surpassed this year two months prior to the date set for the opening of the Exhibition. In addition, a few previous exhibitors and several new ones are definitely committed to take space before the show opens.

Using the advance showing as a guide-post, it seems safe to predict that the attendance at the coming 1938 Exhibition will be equal to and probably exceed the number of those who have attended in the past, with enlarged practical values and results to be obtained by the exhibitors and the knit goods manufacturers.

This splendid showing, under present business conditions, is a tribute to the farsightedness of the suppliers of the knit goods industry, and their confidence in the future of the industry, and in the value of the Exhibition itself, which, year after year, sees the return of over 90 per cent of the previous exhibitors, as well as the addition of several new ones. This year's record, according to the latest available reports, is explained by the fact that over 15 of last year's exhibitors have increased their space, 14 concerns will show for the first time, and several former exhibitors, who did not show last year, have returned.

All available floor space in the large Exhibition Hall which is suitable for use by an exhibitor is being utilized. However, the Exhibition management will not permit the demand for space to interfere with or lessen the attractiveness of the Exhibition itself which has been enhanced in recent years by many constructive changes in arrangement, new decorations and wall coverings, and modernized exhibits by the individual exhibitors. This trend toward dressing up the show on the part of the exhibitors and the Exhibition management was especially noticeable last year and brought much favorable comment.

This Knitting Arts Exhibition has been held yearly in Philadelphia, without a break, since 1906 when the show was started by the National Association of Hosiery Manufacturers under whose sponsorship and management it has remained until five years ago, when the Underwear Institute became a co-sponsor. Since that time, and again this year, the Exhibition will be under the auspices of these two Associations.

The Exhibition is one of the largest and most successful shows of its kind held in this country, and is the only one which covers the knit goods trade exclusively. Not only does it draw several thousands of the chief executives, mill superintendents, buyers and minor executives from the hosiery and underwear fields in the United States, but yearly, large delegations of knit goods representatives come from Canada, as well as smaller groups and individual representatives from foreign countries. A number of the exhibitors who principally serve the knit goods industry also serve other industries whose representatives are invited to, and do take advantage of the opportunity to see the display of such suppliers.

Truly, the Knitting Arts Exhibition is the major event in the knit goods year, as it brings to one place the chief executives of the knit goods industries, especially the hosiery and underwear industries, and these are the executives who have the buying decisions.

Left, Earl Constantine, managing director of the National Association of Hosiery Manufacturers. Right, A. C. Rau, manager of the Exhibition . . .

During the week of the Exhibition the National Association of Hosiery Manufacturers and the Underwear Institute will hold their yearly business meetings. The Association's annual meeting will be held on Tuesday, April 26, and the Institute's convention will be two days later, Thursday, April 28. Both meetings will be held in the convention hall which adjoins the Exhibition Hall.

The Raw Silk Committee of the National Association of Hosiery Manufacturers will, as in previous years, have an instructive and interesting exhibit, along with the exhibit of the Association's Research Department. In addition to the showing of some of the Raw Silk Committee's previous accomplishments, new developments in raw silk testings will be on display, in connection with which a new machine, which is still in the development stage, will be shown. This machine will be used for the testing of the lubricity of silk yarn.

The Research Department is planning to feature a new publication entitled "Methods of Analysis and Tests for Hosiery", which has been prepared by the Research Associateship in cooperation with the National Bureau of Standards and the American Asso-

ciation of Textile Technologists. In order to more clearly show how the methods of tests or its procedures are carried out, photographs have been taken of the various types of apparatus necessary for the testing of hosiery. These photographs will be on display at the Research Department's booth. In addition, a few of the more troublesome problems of the hosiery industry, with photographs, will be shown.

The 34th Knitting Arts Exhibition is off to a good start and undoubtedly it will again meet the expectations of the industry's suppliers and the industry's managements, with mutual advantages to both.

## Come In to See Us: Space No. 83

**At the Knitting Arts Exhibition, in Philadelphia, COTTON will occupy Space No. 83. Representatives of the editorial and advertising departments will be on hand throughout the week, and a cordial invitation is extended to all those attending the show to visit with us. Those in attendance during the week will include: W. J. Rooke, president; Robert W. Philip, editor; Richard P. Smith, advertising manager; and A. C. Shaw and E. A. Robison, business department, and John C. Fonville, editorial department . . . . . .**

# Exhibitors at Knitting Arts Exhibition—1938

| Firm | Space Number |
|---|---|
| **A** | |
| Aberfoyle Mfg. Co. | 307-8-321-2-332-3 |
| Adamson Bros. Co. | 106 to 109 |
| Adelphia Textile Co. | 376 |
| Allentown Bobbin Works | 215 |
| American Bemberg Corp. | 279-80-289-90 |
| American Enka Corp. | 223-224 |
| American Rolling Mill. Co. | 22-23 |
| American Safety Table Co. | 420-21-22-23-434-35 |
| American Thread Co. | 221-222 |
| American Viscose Co. | 309-10-19-20 |
| American Vitos Co., Inc. | 50 |
| American Wool & Cotton Reporter | |
| American Yarn & Processing Co. | 388-389 |
| Jos. Amon | 282 |
| Edw. R. Ammon, Inc. | 37 |
| Arrow Needle Co. | 11 |
| Atwood Machine Co. | 206-7-212-13 |
| **B** | |
| Bliss Fabyan Co. | 426 |
| Boger & Crawford | 273-4-295-6 |
| Boshamer & Co. | 40 |
| H. Brinton Co. | 142 to 147, inc. |
| The Brugger Winding Co. | 164-5 |
| H. W. Butterworth & Sons Co. | 64-65-66 |
| **C** | |
| Cannon Mills, Inc. | 390-391 |
| Cheney Bros. | 437 |
| Cidega Machine Corp. | 69 |
| Clover Leaf Mfg. Co. | 3 |
| Columbia Narrow Fabric Co. | 204-205 |
| Continental-Diamond Fibre Co. | 89 |
| Chas. Cooper Co., Inc. | 364-365 |
| COTTON | 63 |
| **D** | |
| Darlington Fabrics Corp. | 62 |
| Davison Publishing Co. | 170 |
| Dixie Mercerizing Co. | 245-6-7-8 |
| Dubied Machinery Co. | 424-425-432-3 |
| Duffy Silk Co. | 396-397 |
| Duplan Silk Corp. | 51-52 |
| E. I. du Pont de Nemours & Co. | 230-231-260-261 |
| The Ewing Thomas Corp. | 38-9 |
| **E** | |
| W. F. Fancourt & Co. | 249 |
| **F** | |
| Fairchild Publications | 80-81-82 |
| Fidelity Machine Co. | 270-1-2-297-8-9 |
| Filatex Corp. | 6-7 |
| J. A. Firsching & Son | 358-9 |
| Fletcher Works, Inc. | 171-2-3-4 |
| The J. B. Ford Sales Co. | 352 |
| Foster Machine Co. | 346-7-362 |
| Franklin Needle Co. | 166-179 |
| Franklin Process Co. | 419 |
| Franklin Rayon Corp. | 196 |
| Friednerger-Aaron Mfg. Co. | 21A |
| **G** | |
| General Electric Co. | 180-181-182A |
| General Electric Vapor Lamp Co. | 182B-183-184 |
| General Hosiery Motor Mend Corp. | 244 |
| Grand Rapids Textile Machinery Co. | 159-60-185-6 |
| Grove Silk Co. | 12-13 |
| Gunze Silk Corp. | 56-57 |
| **H** | |
| Hampton Co. | 238-239-240-241 |
| Oscar Heineman Corp. | 344-345 |
| Hellwig Silk Dyeing Co. | 281 |
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# The Maintenance and Fixing of Full-Fashioned Hosiery Machines

## Narrowing Machine Settings

By Arthur J. Cobert

THIS is the eighth installment of a series of articles on full-fashioned machine maintenance, being prepared especially for COTTON by a competent mill man. The first installment appeared on page 103 of the July issue, the second on page 117 of the August issue, the third on page 119 of the September issue, the fourth on page 113 of the November issue, the fifth on page 131 of the December 1937 issue, the sixth on page 111 of the January 1938 issue, and the seventh on page 109 of the March 1938 issue. Thus far the vertical motion of the needles, the horizontal motion of the needles, the function of the regulator, the formation of the stitches, sinker-head and knock-over bar analysis, jack head and slur cam analysis, and adjustments in tension have been discussed. This installment is devoted to the narrowing machine settings. The author will take up any particular phase of fixing you may request, or will answer practical questions submitted to him through COTTON.—The Editors.

THE NARROWING FRAME of a full-fashioned knitting machine constitutes the chief difference in principle to other types of knitting machines. This unit makes it possible for the machine to fashion the stocking as desired. It is also the medium by which lace and picot edge is produced.

With the aid of the double camshaft principle, an entirely different motion is introduced during the narrowing motion from that of making the stitch. Although the needles travel very much in the same direction, their movement is altered to conform with the narrowing frame as it is lowered into the sinkers and dividers. By means of some pattern device, such as a chain or card, the number and spacings of the narrowings are accomplished. Most machines in use utilize a series of buttons located on a chain which, when placed in the proper position, trips the shogging assembly causing the camshaft to shift to a new position, engaging all the stitch forming rollers on an entirely different set of cams. The narrowing frame rollers are also placed on a different set of cams by this movement, causing it to swing into action at this point.

Courtesy Textile Machine Works.

The footing machine. Showing the complete stocking prior to the looping and seaming operation . .

### Operation of the Motion

During this motion the clutch is disengaged, allowing the slur bar to remain stationary. This prevents the carriers and slur-cocks to move while the narrowings are being formed and no thread is fed into the needles until the completion of the narrowing operation. The shogging assembly is so arranged to bring the camshaft back automatically after one revolution of the cams. This completes the narrowing motion until the next button on the chain comes under the shogging assembly. In the making of lace or shadow clock, the shogging assembly may hold the camshaft in the narrowing position for more than one revolution, depending on the number of buttons placed together on the chain.

Once adjusted, the fixer has little occasion to disturb the settings of the narrowing machine, other than centering of the narrowing fingers or adjustment of the narrowing head itself. Narrowing or picot trouble that develops long after a machine has been erected can generally be traced to some other source rather than on the frame itself. Some other motion relative to the narrowing frame may have been changed, throwing it out of synchronization and making it appear as though the frame was at fault.

Narrowing machine adjustments may be divided into these groups: Top shaft parallel and in relation to back narrowing shaft. Narrowing rods, upon which narrowing fingers are placed, parallel to back narrowing shaft in relation to top shaft for degree of pitch or angle of fingers. Narrowing height, rods in relation to tops of sinkers. Centering of fingers between sinkers and dividers. Amount of finger movement controlled by narrowing head. Adjustment of narrowing cams synchronized with needle bar cams.

In an earlier chapter of this series, a brief outline of the narrowing principle was discussed, making it unnecessary to explain it at this time. We will deal entirely with the adjustments themselves in the order above mentioned.

### Adjusting the Narrowing Motion

The top narrowing shaft is aligned parallel to the back narrowing shaft to produce a straight line over the length of the entire machine. In building the machine, the back narrowing shaft is made parallel with the table. This in turn makes it possible to gauge from the back shaft and still keep the top shaft in line with the table. In some instances the narrowing arms are marked at the factory, facilitating the location of the top shaft, setting the adjustable gauge to these marks. In other instances the gauges are marked for this purpose. Proper alignment of this shaft is important to minimize the amount of filing necessary of the fingers. It is always better to open two or three arms in the area to be gauged and continue this system until the entire frame is aligned. Opening only one arm at a time will not give an accurate setting and will require repeating the operation too many times. As it is the fixer should check his adjustments several times from end to end.

Next, the narrowing rods are aligned parallel either with the back narrowing shaft or with a table gauge parallel to the table. Either method is correct if so specified by the factory. For example it would not be advisable to gauge the rods from the table if the machine was built to be gauged from the back narrowing shaft or vice versa. The wrong procedure would only result in excessive filing of the fingers to bring them in line with the table, as gauges must be used at the same point where the builder designed them to be used.

This adjustment governs the degree of angle at which the narrowing points contact the needles and is therefore of extreme importance. Some machines have the brackets, holding the rods, pinned to the top shaft, preventing any further change of this angle. Nevertheless most builders agree that it is better to leave the rods adjustable to meet different requirements. It is easy to understand that unless the rods are in a perfect line from end to end, binding of same will result and the rods will not move freely when drawn back during the knitting of the heel and toe portions.

Narrowing height is generally measured from the tops of the sinkers to the bottom narrowing rod. The sinkers are brought to a forward position in order to be able to place the gauge upon them. All narrowing arms extending to the back shaft should be loose when gauging narrowing height to prevent any twist in this shaft. The gauge should be placed as close to the lift arms as possible and these points checked first. After the entire machine has been checked at the various lift arms, tighten only the back arms directly over these points. Leave the intermediate arms loose temporarily. It will then be possible to gauge the intermediate divisions of the frame for height. Raise these various points by the use of a bar of some kind placed under the rod, going higher than the gauge calls for and tighten the arm directly above this particular point. In releasing the pressure applied to raise the frame it will be noted that it drops considerably and it may take several trials to bring it to the correct height. Narrowing frames having a lift arm at each division do not require this procedure as all height adjustments can be made directly on the arm set screws.

It should not be necessary to deviate from the standard setting for height as long as the needles are kept at standard. Nevertheless some explanation as to correct height will be given for the interest of our readers. When the narrowing points and needles meet in performing the narrowing operation, the tip of the narrowing points should be imbedded into the grooves of the needles at a point approximately half-way between the lower edge of the needle grooves and the bottom tip of the beards. This will allow for any variation that may occur over the entire frame. By breaking off a needle at this point and inserting it into the needle bar, the narrowing height may be observed if the finger is allowed to come down over the broken needle.

As little filing as possible is desirable when aligning narrowing fingers in order to preserve the original angle of the points. The table gauge should be adjusted in such a manner as to bring the majority of fingers in line without filing. In other words, the gauge should be set to the average finger, striking a medium between extreme forward and backward positions. Before any attempt is made to gauge the fingers it should be made certain that top shaft and rods are in the proper position. They should be rechecked several times, allowing the frame to dip continuously for a few minutes before the final check. Naturally, the fingers should not be on the frame at this time.

### Precaution on Used Machines

In the case of gauging fingers on a used or previously erected machine, one point should be observed very closely. Do not file a finger unless the narrowing points themselves are first checked for straightness. Sometimes a finger will appear out of line when in reality the points have merely been pliered wrong. Naturally this will give the points the wrong pitch or angle and filing such a finger will not relieve the condition.

Too much filing of the top or long fingers on either a legger or footer will cause them to bind against the lower narrowing rod, unless additional clearance is filed at the point where they bind.

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will be in Phila. week of April 25th will check with T.M.W. on this J.B.J.

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# ROYERSFORD NEEDLES

In placing the narrowing fingers on the rods, it is well to observe one point in particular. Center the fingers as accurately as possible with the holes in the rods before they are set with the sinkers. This is to obtain an approximate setting, moving the entire rod one way or the other until the majority of fingers come over the correct needles. No filing will then be required of the screw holes in the fingers to center them. This is extremely important on footers where large and small fingers must meet with a uniform amount of clearance between each finger.

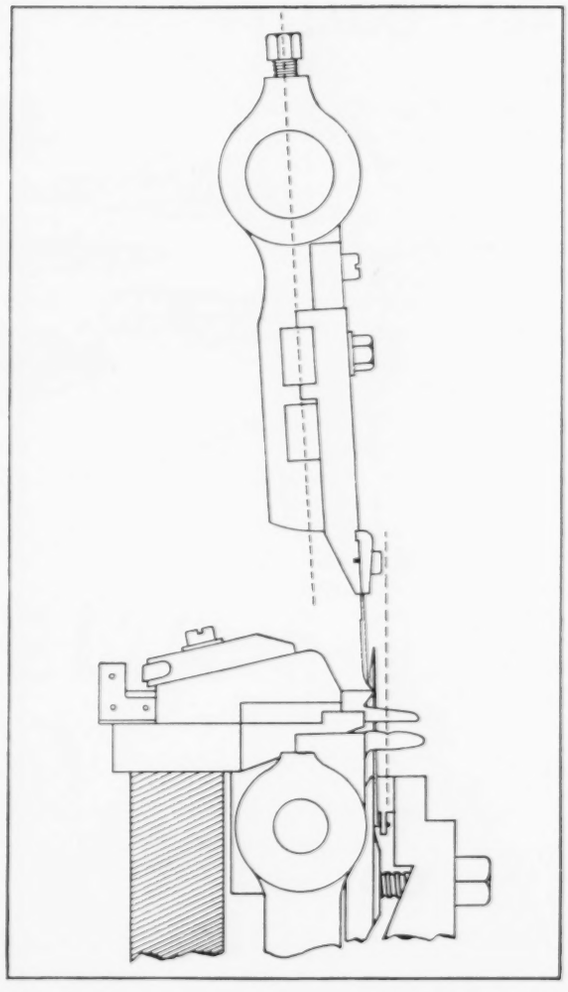
### Set Fingers with Sinkers and Check with Needles

Narrowing fingers should be set first with the sinkers and later checked with the needles. The reason for this is as follows:

It is impossible to cut sinker heads and needle bars without some variation over a long distance, such as in a 14-inch head. Centering the fingers at one point of the head will, no doubt, work perfectly there, providing, of course, the needle bar is centered correctly. At another point of the head the same finger may be off with the sinkers enough to cause narrowing menders. The finger may be divided between the sinkers and needles in such a manner as to have it work correctly at all points.

Correct synchronization of narrowing cams with needle bar cams is of the utmost importance. This should present no problem if standard gauges are used. A slight deviation from standard will produce extremely undesirable results. These cams are the most sensitive of the entire machine and require the closest adjustment. When perfectly synchronized, the narrowing points and needles on contact with one another remain together without any sliding movement of the needles until all pressure is released from the points. Only then is the movement of the points retarded and the needles accelerated to perform the transfer of the loops. Again, on the delivery, once the points and needles contact one another, their movement is the same until pressure is released and then the point movement is accelerated and needle movement slowed down.

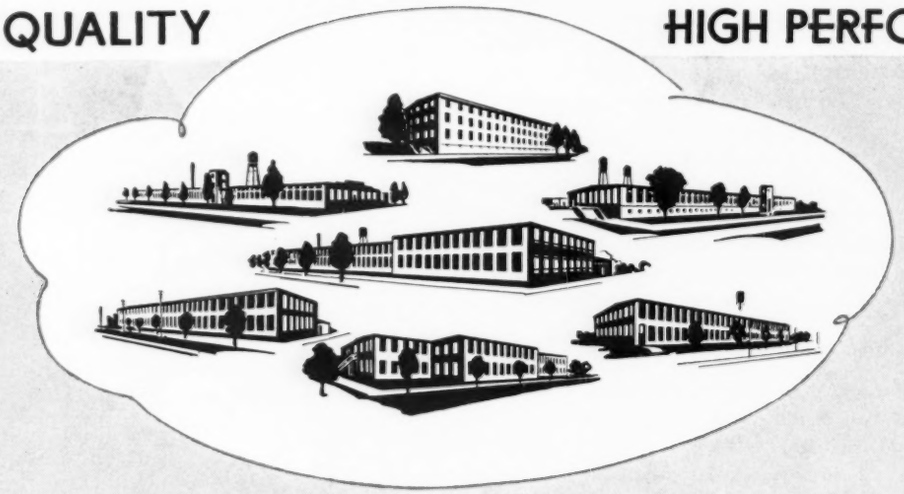
Upon close examination of the narrowing motion it will be noted that the frame in its downward sweep will swing through an arc rather than lower vertically. This changes the angle of the points at every point of movement, which is quite necessary for good performance of the narrowing machine. The narrowing points, on contact with the needles upon what we shall term the take-off, must touch them in such a manner as to facilitate the removal of the loops from the needles to the points. Here the curved tips of the points should imbed themselves into the needle grooves a little earlier than the rest of the point. A properly adjusted narrowing frame will have this position on the take-off. When pressure is then applied to the points by the motion of the needles, the loops are readily slipped from one to the other, without danger of needles falling between the narrowing points. Continuing the narrowing movement until delivery takes place, or that part of the movement where the needles again contact with the points for the return of the



This illustration shows the degree of angle or pitch of the narrowing frame in relation to the needles when in position for take-off On the delivery of loops, the narrowing frame is much lower, throwing pitch in opposite direction . . . . . .

loops, we find the narrowing frame in a much lower position than on the take-off. This changes the degree of the points considerably. Here the tips of the needles must enter the grooves of the narrowing points first, while the curved tips are still free. This angle permits free movement of the loops back to the needles without splitting the stitches. The wrong angle or degree of the narrowing frame at this juncture is the cause of considerable trouble commonly known as blind narrowings. Instead of the needles imbedding themselves perfectly into the grooves of the points and permitting free passage of the loops, some of the needles may split the fibers, especially at the fashion mark where there are two loops, one on top of each other. This condition is usually unseen until the stockings are finished and sometimes not until worn. Naturally, all trouble of this nature is not due to the improper pitch of the narrowing frame, as there are many other reasons, but some stubborn cases may be traced to this condition. From what has been discussed in this paragraph on the subject, the following may be summarized:

FINEST QUALITY HIGH PERFORMANCE



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Correct pitch of the narrowing frame is the division of angle between take-off and delivery. On the take-off the points should incline toward the needles and on the delivery they should incline away from the needles. Dividing this between the two points is the correct pitch.

### Pressure Between Needles and Points

The amount of pressure between needles and points needed for good performance is not easily explained. Ordinary narrowings do not require as great an amount of pressure as picot or lace narrowings. In the case of the latter, more is required as the bars have a tendency of moving back, due to their length and flexibility. Usually, other narrowing press cams are substituted when lace is made, to facilitate the transfer of the loops.

Too little pressure on the take-off will result in the loops not transferring to the points. Here again the mistake can be made of increasing pressure when, perhaps, the pitch of the frame is at fault. Very little pressure is needed on a properly adjusted narrowing frame to produce good results. For example: a narrowing frame had been giving trouble in the picot, in the form of skip stitches (failure of the points to receive the loops on the take-off). Increasing the pressure on the press cams at this point did not relieve the trouble, but upon moving the top shaft back a little and swinging the rods out to bring the fingers in the correct narrowing position, the trouble was eliminated. This adjustment increased the pitch of the points, permitting them to enter the needle grooves a little sooner. In this position the points were imbedded more firmly into the needles and transfer of the loops was assured.

Too great pressure on the delivery will cause the needles to fall between the narrowing points and strike the sinkers on their upward movement, resulting in broken needles. These needles will generally appear with the tips bent in toward the press.

Proper timing of the press cams is also a factor not to be dealt with too lightly for good narrowing performance. As all the various motions are relative to one another, it is difficult to ascertain by sight if these cams are not adjusted properly. Checking with standard gauges eliminates guess work and promotes accuracy. Any one of a number of motions out of time will make it appear as though the rest were not in the proper place.

Narrowing machines having center controls for operating the rods must be securely fastened at the back narrowing shaft to prevent any end play, which would seriously affect the setting of the fingers. A certain number of the arms extending to this shaft act as collars when placed against the bearings and care must be exercised to insure close contact at these points. Machines equipped with the narrowing heads at the ends will not require such critical setting of the arms as any end play of the back shaft will not be transferred to the rods. Nevertheless, there should not be any end play in either instance.

From what has been written in the preceding paragraphs it may be gathered that proper pitch of the narrowing frame is of paramount importance. Normal temperature changes in the knitting room should not affect a properly adjusted machine and narrowing menders should be slight. Needles and points properly aligned will help a great deal toward good performance of the narrowing frame, as well as all the adjustments that can be made on the machine itself.

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### New Hydrogen Peroxide Plant

The Pennsylvania Salt Manufacturing Company has just completed the erection of a hydrogen peroxide plant on its Wyandotte, Mich., property. The entry of Pennsylvania Salt into the hydrogen peroxide field now enables it to offer most of the widely known bleaching agents: chlorine, chlorinated lime, sodium hypochlorite, Perchloron, and hydrogen peroxide. This latter product is manufactured by a new, modern, electrolytic method. Hydrogen peroxide is a colorless liquid which is a highly active oxidizing agent for both inorganic and organic materials. Pennsylvania Salt plans to market the new product in the textile, pharmaceutical, laundry, and industrial fields. In the textile field it is used to bleach cotton, real silk, and rayon; in the pharmaceutical field as an antiseptic and disinfectant. Laundries use hydrogen peroxide to prevent the yellowing of white fabrics and to reclaim the freshness and original brilliance of colored goods, while in the industrial field, hydrogen peroxide has a variety of uses.

### Harry Terry Moves to New Offices

Harry Terry has moved to 8 S. Michigan Ave., Chicago. Until February 1 he had offices at 360 N. Michigan Ave. Mr. Terry, who was vice-president of The Cramer-Krasselt Company for 10 years, resigned January 1, 1937, to open his own offices as advertising and sales economist. He works with both advertising agencies and advertisers in co-ordinating sales and advertising plans by making sales and market studies and advertising audits at the point-of-sale.

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### Coggeshall Made Assistant Turbine Sales Manager of G. E.

Clayton S. Coggeshall has been made general assistant to R. B. Beale, manager of the turbine division, central station department of the General Electric Company. Formerly, he was manager of sales of the turbine division, Lynn River works. He is succeeded at Lynn River by John L. Kerr, previously turbine specialist in the central district. Robert S. Neblett has become manager of sales, Schenectady section, turbine division.

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### "Certified Quality"

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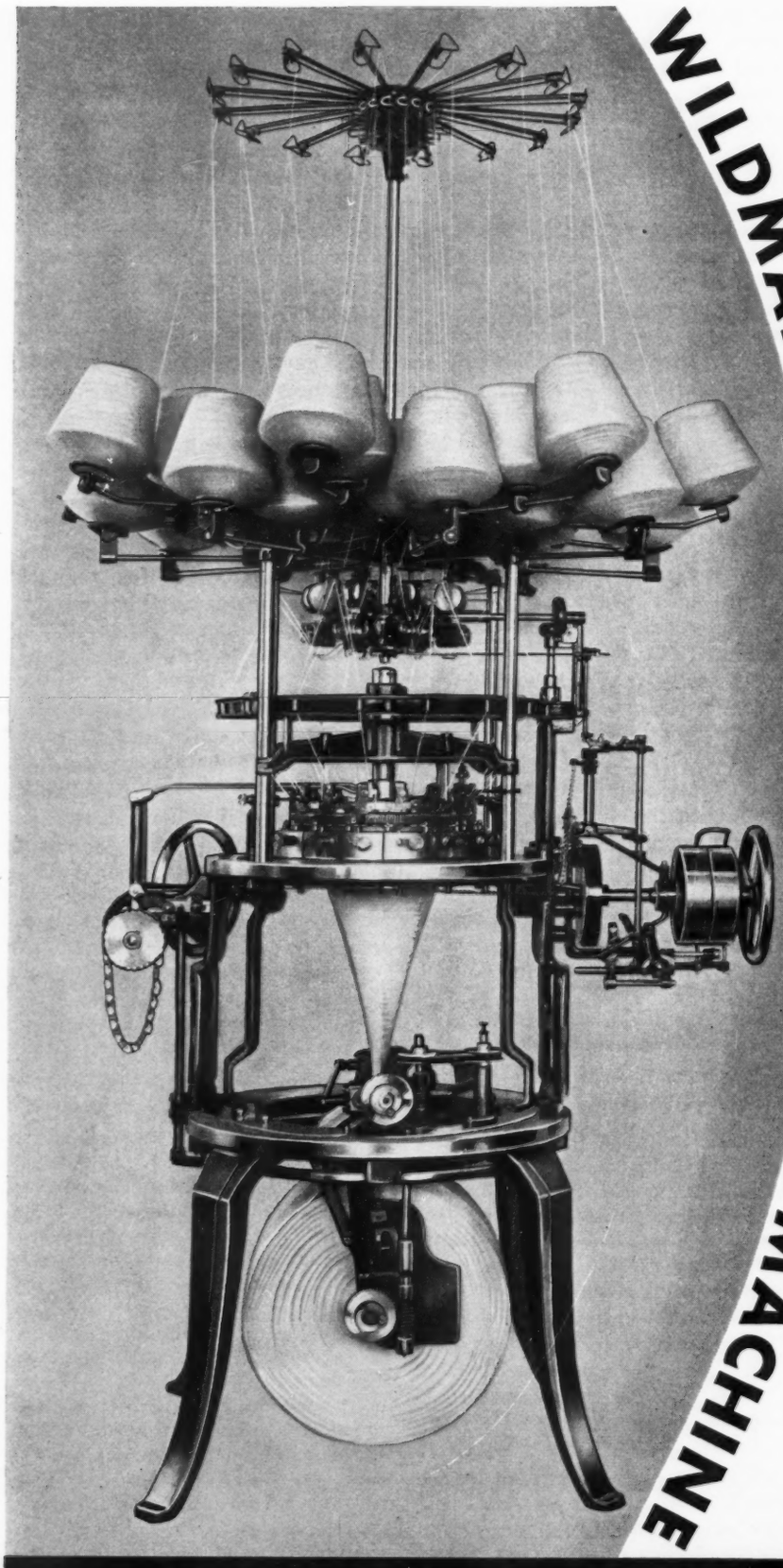

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# WILDMAN SINGLE-HEAD, SINGLE UNIT FULL-FASHIONED HOSIERY MACHINE

## Some Practical Notes on—

# Dyeing Cotton Knit Goods

By E. S. Dunlap, Ch. E.
Dyer, Belle Knitting Corp., Sayre, Pa.

ARCHITECTS often erroneously think they are doing the dyer a great favor by designing a dyehouse with many windows. This may be true at times, but it is not when the dyer must run developed colors. At such times he wishes that it were a cloudy day and solemnly curses the ground the architect walks on. At our plant we have been able to overcome the problem of direct sunlight on the dye tubs by building a canvas frame which may be attached to the tub whenever it is needed. This prevents the sunlight from reaching and affecting the colors.

•

ON COTTON knit goods the one-bath method is being widely used whether the shade requires bleaching or not. Bleaching materials used are either sodium peroxide or sodium perborate or compounds containing either of these chemicals. The bath is usually started warm, and after the fabric has been wet out the bleaching material is added. The dye is put in the bath and it is brought to the boil in 30 minutes, and kept there for from 30 to 45 minutes, depending upon the degree of bleaching required. Also, the ease with which the fabric is dyed level has an influence on the length of time the bath is kept at the boil. Next the fabric is sampled for shade, and if correct, the bath is cooled and dropped. A typical formula for a Maize shade on knit goods is: 2 per cent sodium peroxide; ½ to 1 per cent wetting-out agent; and 2 ounces of dyestuff. Sodium perborate is used often in one-bath procedures because some dyers believe it does not destroy the dyes as much as sodium peroxide. Most dark shades require no bleaching so the one-bath method proves quite economical.

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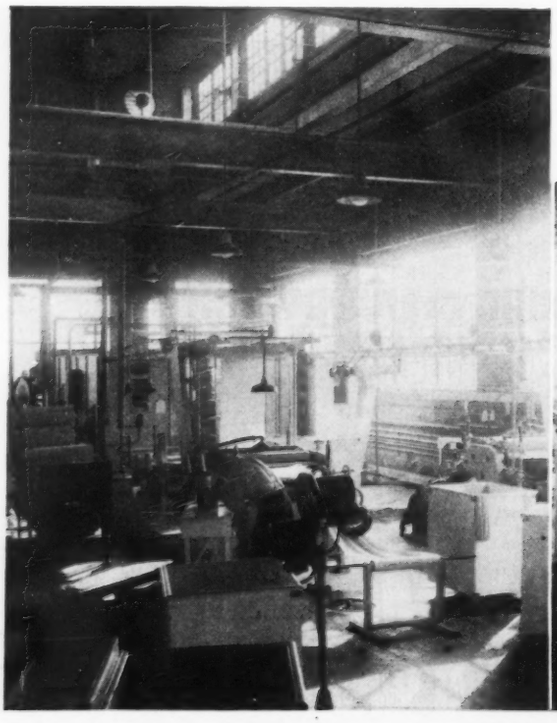
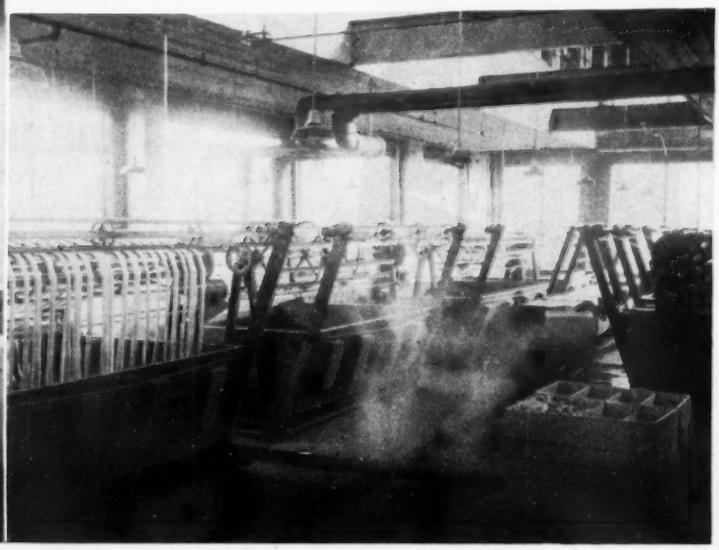
SINCE the price of the various sulfated higher alcohols has been reduced, it is prudent to use them in the processing of cotton knit goods. A fine bath which will withstand maximum salting can be made of from ½ per cent to ¾ per cent of these products. The length of the pieces is important. They should be not over 125 to 140 yards and should always be of uniform length.

•

MACHINES that do a good job of dyeing rayon and acetate fabrics sometimes prove unsatisfactory on cotton fabrics. One of the reasons may be that the speed of the reel is too slow. A reel speed of 28 r.p.m. is especially necessary in the processing of fabrics with developed dyes because a slower movement of the cloth allows the chemicals to damage the goods.





Left, view of finishing department at Belle Knitting Corp., Sayre, Pa. Right, the dyehouse at the same plant . .

# KNITTING KINKS

## A Review and Discussion of Horizontal Striping Attachments for Scott & Williams Machines

By Matthew K. Mitchell

NOT SO MANY years ago horizontal striping attachments were considered a fad, something that would pass out of the picture and be forgotten in a short time, like many other attachments which have come and gone. Old-time machine fixers actually despised them and secretly hoped they would die young. Today, horizontal striped numbers are the tops in many lines of seamless goods, and without them a large number of seamless mills would be on their last lap.

Thousands of dollars have been spent by mills in equipping machinery with horizontal striping attachments and thereby modernizing obsolete equipment. So once again the machine builders have made it possible to produce merchandise that will fill today's demands on yesterday's machines. Never before and perhaps never again will any one attachment have such a far reaching effect on the seamless hosiery industry.

In this connection it is interesting to note the many changes in design and construction which have been made on striping attachments by the machine builders during recent years. From a cumbersome device which was very limited insofar as stripe combinations were concerned, it has been developed into a highly flexible unit with unlimited possibilities for varied stripe effects. Actually it has become a machine within itself; it is a very flexible device.

The first horizontal striping attachment produced by Scott & Williams, strange to say, was a chain striper, but there is a great difference between it and the latest device, which will be described and discussed in detail in a subsequent article.

### The First Chain Striping Attachment

The first chain striping attachment consisted of a bracket mounted on the back of the machine frame, similar to the present day 6- and 7-track striper attachment. The bracket was equipped with a shaft, striper chain sprockets, and ratchet wheel to drive the striper drum. Yarn changes were made by a series of chains which were carried by a sprocket, one chain being used for each actuating lever to raise the respective thrust bars and yarn fingers, and one chain to operate the yarn shears and clamp actuating lever and thrust bar. Each chain was arranged with a given number of lug links and plain links to raise and lower the respective fingers the number of courses desired. Fingers were raised by the actuating lever plate riding up on the chain link lugs. The yarn shears operated in the same manner. Each chain was supplied with a heavy cast iron spool which prevented the chain from buckling.

Two pawls were used to rack the striper ratchet wheel around, the long pawl 5579 supplying a full stroke to make the yarn change. At the termination of its stroke, the short pawl 5580 would supply enough additional motion to open and close the yarn clamp and shears. Both pawls were constantly in motion, the long pawl being driven by an eccentric 6850. The short pawl was mounted on the pin 6864, and both of these were attached to the shaft 6872. The shaft 6862 in turn was driven by the striper gear 6850 which was meshed into the regular segment driving gear 6022.

Starting and stopping of striper ratchet wheel was controlled by the starting lever 5603. The complete mechanism is not shown on the sketch (Fig. 1). A long rod passing through the upper prong of the starting lever with collar attached and extending through the machine frame down to the starting striper lifter lever operated by the pattern chain links permitted dropping the pawls away from the ratchet wheel when the starting lever was released. A starting control somewhat similar is being used today on the 6- and 7-track stripers.

It will be noted that the assembled thrust bar actuating lever 5611 is almost identical with those being used today except that the actuating finger does not have the adjusting screws on both sides of the set screw for raising or lowering the finger. Reading from right to left (Fig. 1) chains 1, 2 and 3 were used to raise and lower the yarn fingers and 4 to operate the yarn clamp and shears. Chain links 28, 27, and 26 were used on the respective tracks.

It will be noted also that the ratchet wheel used on the chain striper had only 18 teeth. One complete revolution of the ratchet wheel did not determine the number of striped courses which could be made. The various stripe widths, repetitions, or sequences were obtained by making one complete revolution of the striper chain.

Anyone familiar with present day striping attachments can readily see that a firm foundation for these various devices was laid back in 1919. The detailed discussion and sketches are presented only to show that the machine builders have come through with flying colors; the progress to date along this line is truly remarkable.

Two short years pass and in December 1921 we find additions, changes, and improvements on the original S & W horizontal striping attachment. Fol-

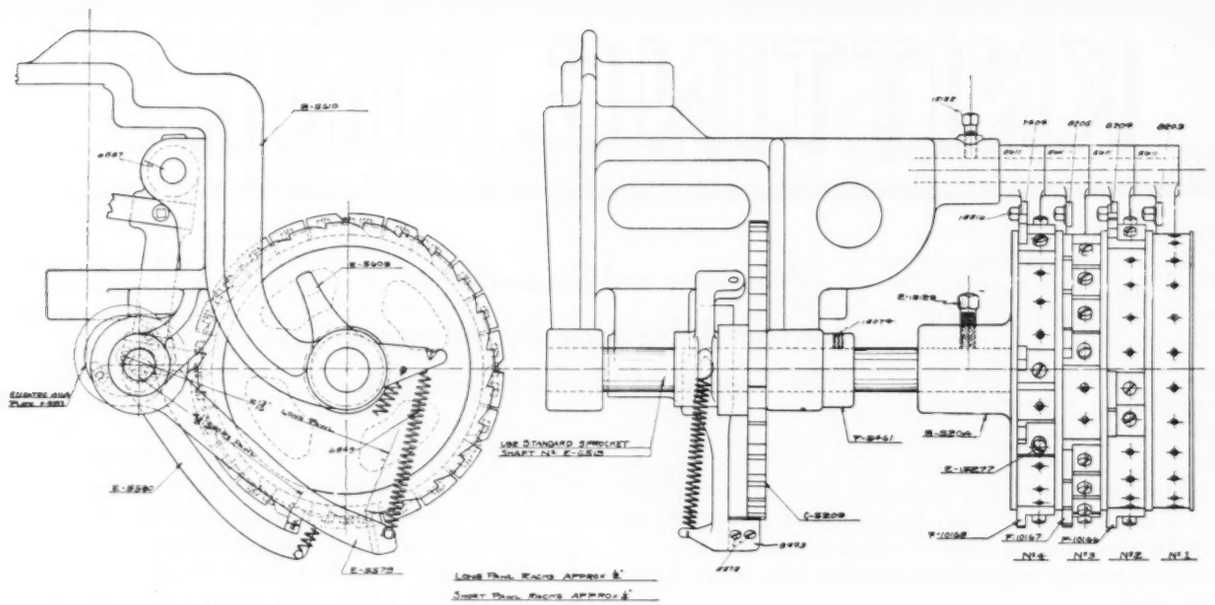


Fig. 1

lowing a well-known tradition, the machine builders do not make radical changes but rather offer improvements at a nominal cost.

The second striping attachment (See Fig. 2) is a drum striper using four tracks of cams in place of four sets of striper chains. The controlling mechanism as a whole remains unchanged with but two exceptions, the 18-tooth striper ratchet wheel is replaced with a 24-tooth wheel and the striper chain sprocket is replaced with a drum on which are mounted various lengths of interchangeable drum cams.

Three tracks of cams were used to control the movement of the yarn changing fingers and one track of cams supplied the motion necessary to operate the yarn clamp and yarn shears. The striper drum with cams to control all changes was far superior to the chain striper. The cam action was more positive than the striper chain links, and it provided greater and better adjustment possibilities. Ample adjustment facilities and positive mechanical action are two vitally importan factors; we dare not overlook them because yarn changes must be made in split-second time. Uneven lengths in laps of changes and irregular placement or yarn laps do not make a pleasing appearance, and such defects do not bring repeat orders for horizontal striped numbers. Bad yarn changes cause seconds and waste, which means increased costs, especially on ingrain numbers. The industry appreciates the efforts the machine builders have made for their untiring activity in developing and improving striping attachments which will enable us to produce merchandise at reasonable costs.

### Ingrain Numbers Popular

During the past few years the tide has turned definitely toward ingrain, horizontal striped numbers in misses and childrens anklet lines. Dip dyed anklets with resist striped elastic cuffs are being offered in larger volumes; plain anklets are on the down grade. Trends in half-hose are in horizontal stripes used in connection with vertical stripes, patterns, and designs of various kind; all of which means that horizontal striping attachments have helped in a large measure to make history in hosiery.

When we think of the history in motor car development, the word "progress" immediately enters our minds, and looking back on S & W striping attachments, we find progress has been made in like measure, for with an eye on the future a new horizontal striping attachment was brought out (Fig. 3). (In presenting the brief description of the first two striping attachments, all reference pertaining to care, operation, or adjustment of these was purposely omitted.) In commenting on the third striping attachment, an attempt will be made to discuss it in detail, covering its care, operation, and adjustment from the machine fixers' viewpoint.

### The Third Striping Attachment

The device shown in the accompanying sketch (Fig. 3) can be applied to numerous S & W machines, including B3, B5, HH, and K models. In fact, it is a universal attachment—another reason why it is and has been used so extensively. A casual examination of the three attachments shown herewith will convince anyone that some real progress has been made in the course of final development. Some of the parts such as the striper bracket 5610, the striper drum, and cams remain unchanged, including the method of raising the yarn fingers. However, quite a number of changes have been made in the controlling mechanism and each change helped to make the third striping attachment more positive, flexible, and efficient than the first two.

The striper ratchet wheel is now supplied in two parts, a hub and an outer section. The outer section has the usual 24 teeth, but is made of hardened steel in place of cast iron. It will last indefinitely. All troubles caused by worn ratchet teeth have been positively eliminated. Suitable screw adjustments have been provided which permit advancing or retarding the ratchet wheel on its hub when necessary. The

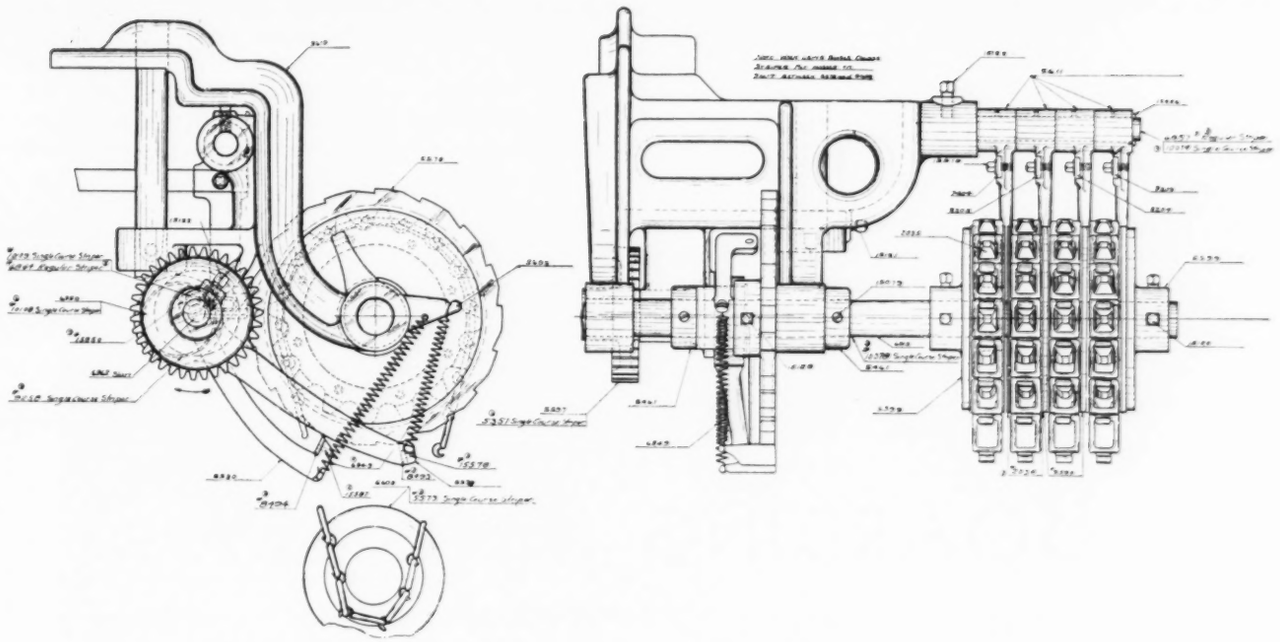


Fig. 2

outer section can be located on the hub in different positions. These respective adjustments are very valuable as they save much time and labor. The later model striper drums are made in various lengths, carrying as many as seven tracks of cams which make it capable of producing six color stripe combinations.

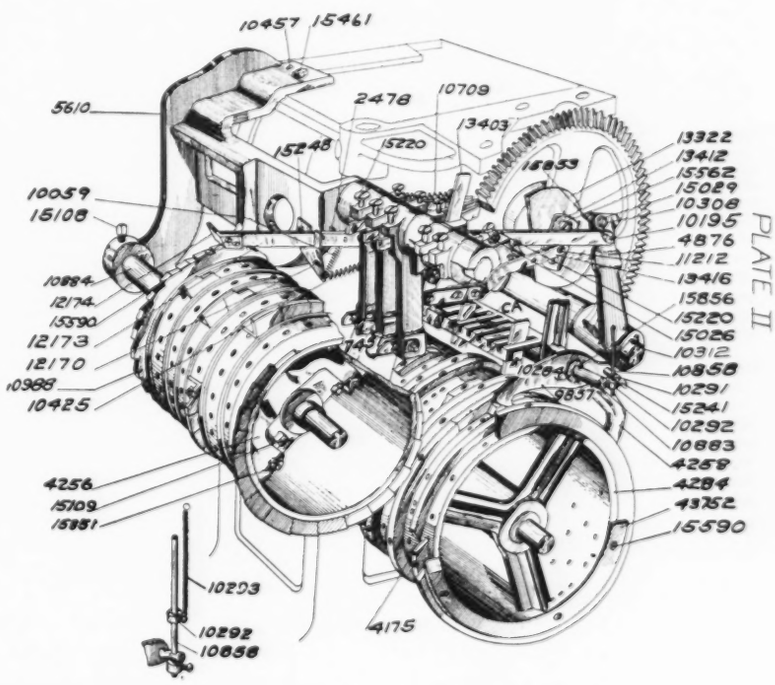
The striper drum friction 4256 is provided with two friction shoes, one pressing against each side of the drum; friction can be increased or decreased at will by turning adjusting screws 15109. This friction keeps the drum under control most satisfactorily. Excessive friction on the striper drum should be avoided as it causes unnecessary wear on the driving mechanism.

Striper drum slippage or loss of control is often caused by oil accumulating on the inside of the striper drum in the path of the friction shoes. Wipe the oil out of the drum after each oiling, and develop the habit of wiping out the drum first when they begin to run too freely; if results are not obtained then, increase the friction slightly and keep an equal amount of friction on the respective shoes.

Worn racking plates 12174 cause drums to get out of time. Reface the plates at regular intervals and renew them before they become badly worn. Renewing racking plates after they have caused a lot of seconds to be made is very much like calling a doctor for a dead man.

Frequently the fixer will find that the racking plate 12174 after making a forward stroke will fail to go back far enough to reach the next tooth on the ratchet wheel. This trouble can be caused by excessive striper drum friction and/or by worn ratchet wheel teeth. Cast iron ratchet wheels if abused by excessive friction on the striper drum would develop this trouble; steel wheels never.

Some fixers try to overcome this trouble by filing (shortening) the teeth in the ratchet wheel. They always invite more trouble, to say the least, and such practices are not machine fixing, but machine wrecking. The contour of the racking cam 13322 controls the length of stroke made by the racking rod 12173. Worn racking lever studs 10308 and stud rolls 10714,




Right, Fig. 3

also worn racking lever pivot pins 10195 are often the direct cause of a shortened stroke on the racking rod. Insufficient tension on the racking rod spring can also cause the racking plate to miss a tooth on the ratchet wheel. If the various parts mentioned are in good shape and the racking rod still fails to reach the ratchet teeth in successive order, there remains but one positive remedy—change the contour of the racking cam 13322. This can be done by removing the racking cam and grinding out the low point as little as 1/32-inch. When grinding out the low point of the racking cam, taper it on both sides so the roller will not bounce while passing over this point.

Remember that the striper drum has a long bearing; the striper drum shaft has an oil groove; the shaft should be set in the bracket so that the oil groove is up and the oil hole in the friction bracket should be directly over the groove in the shaft. Lubricate the striper drum shaft at least twice each week and avoid a lot of unnecessary wear. Remove the striper drum from the shaft occasionally, clean the shaft, and scrape old hardened oil from the oil groove. These little points are important and they are a part of the machine fixers' job.

So, Mr. Machine Fixer, do your part, take care of the little things, and you can bet your last dime that your striping attachment will give you an even break.

**(The next article by Mr. Mitchell will continue this discussion of the striping attachments.—The Editors.)**

# BOARDING HOSIERY

## By Leslie Worth

BACK IN THE PRE-WAR DAYS when the hosiery mills of the South manufactured mostly coarse merchandise, boarding was merely a matter of drying and shaping, and as long as the goods were fairly dry and were handled without too much rumpling, the boarders had a comparatively easy job. Of course, conditions in the boarding room are different now with sheer silk hose and delicate constructions being made—the boarders must handle the goods with more care and precision. This activity has advanced in class from semi-skilled to skilled labor.

In some mills the boarders are credited with making most of the bad work, and often they do become careless, but the superintendent of the plants should know there are a number of things that will cause bad boarding besides carelessness on the part of the operative. Before hosiery can be boarded properly it must be knitted to fit the forms it is to be dried on. This cannot be done if the fixer sizes the hose at the knitting machine on a form that is wider or not the same shape of those forms in the boarding room; it cannot be done if the heel and toe pockets are not fashioned to fit the contour of the forms; or if the foot is too short or the double sole too tight.

Courtesy Proctor & Schwartz, Inc.

The automatic boarding, drying, and stripping machine for hosiery . . . . . .

Improperly looped hosiery will not board correctly. If the looper does not follow the looper course, the gore line of the toe will be thrown off center at the boards and it will be impossible to stretch the gore out smooth. This may not be the fault of the looper, but may be traced to neglect of the knitting machine fixer.

### Conditions in Boarding Room

If good work is expected of the boarders there are certain conditions that must prevail in the room. Better work can be done by providing the operatives with more forms having less steam pressure on them so that the goods will dry slower, instead of having fewer forms with high steam pressure. The faster the hosiery dries on the forms the greater is the tendency for it to shrink when removed. With adequate boarding equipment and it in good working order, hosiery should dry as fast as it is possible for the operative to board it. When the goods are coming off the forms damp, the boarder is not working too fast, as is commonly thought, but there is something wrong with the drying system. Possibly the steam pressure has dropped too low because the drain traps are not working, or maybe the dyehouse is using more than its share of steam. In line with this, it is better to keep a good reserve of steam pressure so there will be no difficulty in either the boarding room or dye-house.

# BECAUSE TORRINGTONS LAST LONGER

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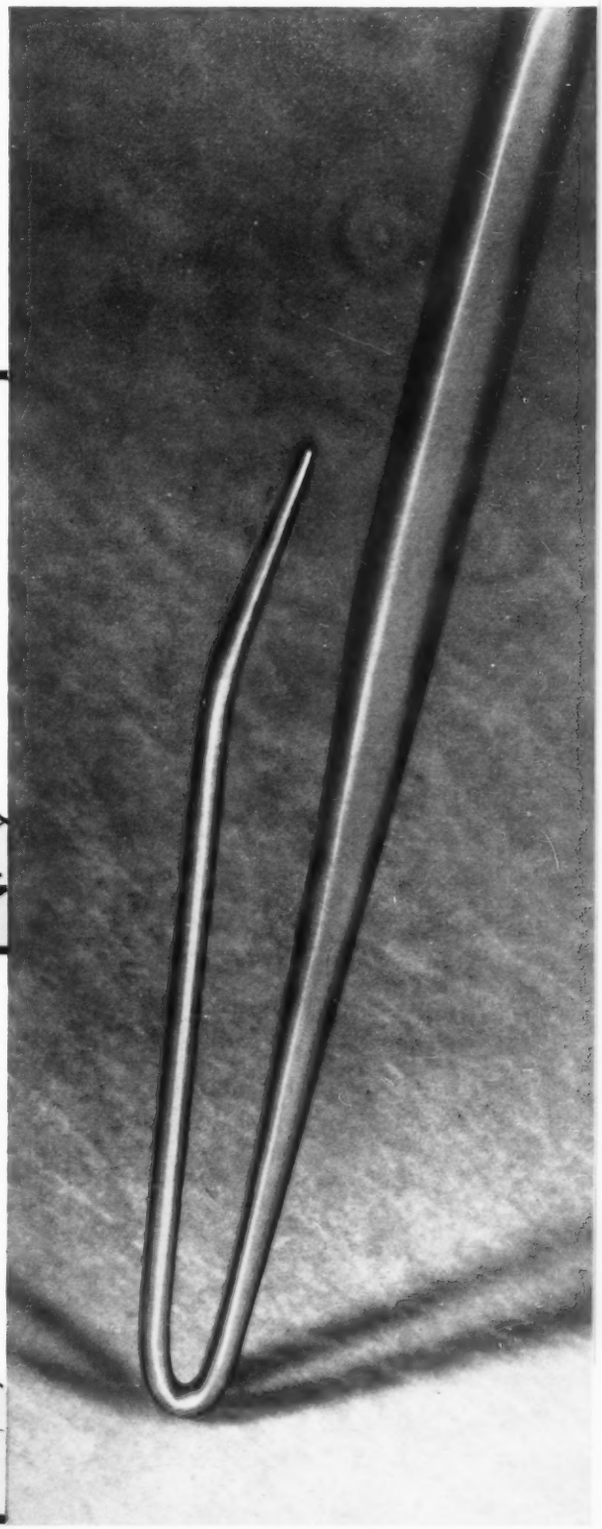

You seem to be having a lot less trouble with needle breakage these days, John.

Yes, and I know the reason why—Torringtons.

So you think our switching to Torringtons was a good move, eh?

Yes, the Torrington people know how to make them better at the points that count. Take the bend of the crimp, for instance.

What's that got to do with breakage?

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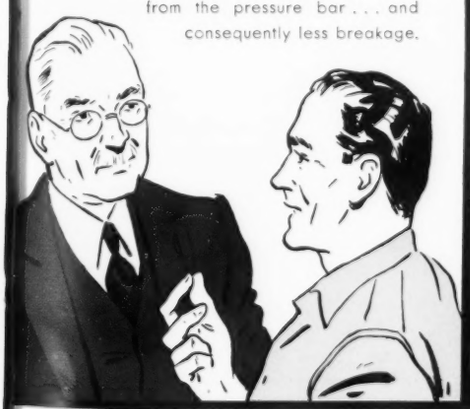

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# Torrington LATCH Needles

Courtesy Paramount Textile Machinery Co

Illustrating the dual heat machines for boarding hosiery . . . . .

Some system such as a reducing valve leading to both the dyehouse and the boarding room should be devised so there will never be varying steam pressures. The reducing valves and drain traps do their work quietly and efficiently, but are often forgotten. They should be inspected and tested periodically, cleaned if necessary, and all gaskets examined and replaced when needed.

Occasionally the dyers make life hard for the boarders by leaving surplus water in a batch of goods, not being thoroughly extracted. When certain types of forms are used in the boarding room, a hose that is too damp will cause the operative to burn his hands, and make the smooth surface of the forms rough. Dyeing should never be finished with agents that leave the hosiery sticky. When dyeing silk hosiery, in some mills it is customary to give the goods a final treatment with emulsified wax to make them splash-proof, which treatment makes the hose difficult to slip on the forms and thereby weakening the fabric when it is pulled too hard. Fortunately there is available a water-repellent having a soft handle which should alleviate this condition.

Originally all forms used in hosiery boarding were made of wood and were referred to as *boards*—hence the term *boarding*. Wooden forms are still used in the knitting room to size the hose, and are much like those formerly in general use in the boarding room. Manufacturers have greatly improved boarding equipment since the old days, and now equipment is available for any requirements. The same principle of boarding is retained now but the systems vary, among them being the dry-box type for externally drying the fabric, and the internally heated form. Systems include the wooden form and dry box, the automatic drying and stripping machine, the automatic revolving form type, steam heated forms, electrically heated forms, hot water heated forms, and the dual heat forms.

### Movements of the Operatives

Go into any boarding room and watch the boarders work. Some are working as if they are fighting fire and others are apparently taking their time. Those that are seemingly working hard are producing little, if any, more than the ones who seem to be taking their time. Too many boarders make unnecessary motions in the boarding operation, and they get up their speed before they have learned to do the work correctly.

Since the mills pay the boarders piece-work rates and not for the energy they put forth, it would be better for both the individuals and the mills if the boarders were properly trained. A prominent hosiery finisher once remarked, "There are enough false moves and energy wasted in the average boarding room to increase production 20 per cent."

Going into the system of boarding, as the method only differs as the length of the leg on the hosiery increases, we will look at half-hose and ladies' hose. The same methods can be used for anklets and misses' goods.

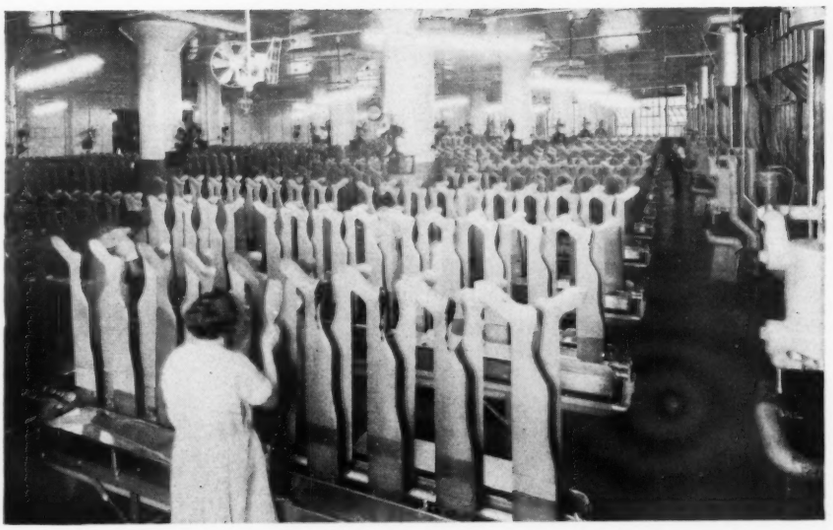
When boarding half-hose, the sock should not be pulled on the board with a heavy-handed jerk as this will stretch the top out of shape. It will go on with less resistance if given a quick, light pull. When the heel pocket has been placed in line with the edge of the board, grasp the heel with the thumb and two fore fingers of the right hand, then place the gore line of the toe in line with the point of the form, using the left hand and index finger. With a little practice the boarder can tell when it is straight on the back side by feeling it.

Next, hold the gore line in place with the left hand, while the sole is stretched with the right hand. This is done by pulling on the heel at right angles to the leg of the board. Now the heel pocket is ready to be dropped down into place. Before leaving the heel, divide the gore line evenly on both sides, with the right hand, in the same manner as when placing the toe.

The best way to pull the leg down is to place the palm of the right hand against the lower front side of the top, with the fingers on the back side, and pull down with the forearm, pushing slightly on the board to get a better grip. Meanwhile, the leg is placed with the palm of the left hand on the back side. While picking up the next sock, give the top a final stroke with the thumb and fingers held at right angles to the board. This method makes a neater top than by pulling on it with both hands.

The foot of seamless ladies' hose is boarded exactly like half-hose. However, when the leg of this hose is composed of the finer counts of silk, the back seam should be placed in the groove while the foot is being attended to, otherwise it may partially dry and leave creases that will not come out. After the foot is pulled out smooth, it is only necessary to pull the leg down taut and smooth out the welt. This is done by placing the palm of the left hand on the back side and right palm on the front, then give the welt a gentle stroke

Courtesy Paramount Textile Machinery Co



Conventional form of boarding forms in a large mill . . . .

downward. When pulling the hose on it is better to run the thumbs and fingers well up the inside of the welt so as not to stretch it out of shape—termed "rainbow" welts.

With the exception of the foot, full-fashioned hose are boarded like seamless. As there is no gore line in the foot of full-fashioned hose, the looper line is the guide. Boarders can save time and prevent many crease marks by forming the habit of picking full-fashioned hose up with the fingers of the right hand on the back seam of the welt. In this manner, it is possible to pull the hose on with the back seam along the edge of the board where it belongs; little effort will then be wasted placing the leg in position.

### Stripping the Hose

Half-hose are stripped six or twelve at a time; six is better. Many boarders lose quite a lot of productive effort straightening out the socks after they have been stripped because they have never learned the proper motions. In stripping socks, the toe is grasped with the thumb and three forefingers of the left hand, the heel with the thumb and fingers of the right hand; get a grip on the sock by pulling slightly against the toe, and pushing slightly on the heel as the sock slides off. Both hands must work in unison or the goods will not come off parallel and in order. This operation is repeated on each board, holding each sock with the fingers until six have been stripped.

Ladies' hose are never stripped like half-hose, although some boarders strip half-hose like lady hose. To strip ladies' hose, take hold of the sole of the foot at the heel with the palm and four fingers of the left hand; with a light push and sliding motion, slip the hose off; at the same time holding the leg very lightly with the thumb and four fingers of the right hand; the best hold is midway between the ankle and welt. If possible let the fingers extend all the way across the leg on the back side. Just as when stripping half-hose, the goods will be wrinkled or disarranged if the right hand moves faster than the left when the hose is being removed.

The foregoing applies to the hollow metal, table forms, but with slight modification, the same method is applicable to the machine types. The idea is, to get the work done with the least possible effort.

Another thing that does not always get the attention it deserves is the correct adjustment of the supports on table forms to suit the height of the boarder. On most tables each leg is made of angle iron or aluminum, with two pieces overlapping and held in place by set-screws. If the tables are set too low a tall boarder will have to stoop too much, which soon becomes tiresome, resulting in a slowing down and consequent loss of production. Since it is not practical to adjust the height of the tables to accommodate each individual, it is better to consider the taller boarders, as the short fellows are not at such a disadvantage when the table is a little high, as the tall ones are when the table is low.

The question that is often asked is: "Which are better, men or women boarders?" Both men and women are satisfactory for this work, the results depending on the individual rather than the sex. However, women are considered by many finishers better for ladies' hose, especially the sheerer weight variety. They claim women are not as heavy-handed as men, and more painstaking and that men as a rule, do not have the love for details that this class of work requires. In the South men boarders are more commonly employed because the heat in the boarding room during the summer is considered too much for women.

◆◆◆

### First Aid for Every Minor Injury

Very likely you can remember some friend or acquaintance who had a bad case of blood poisoning. Usually he neglected first aid for some slight wound and it became infected.

You also may think that because you are well and strong you should pay no serious attention to little cuts and scratches. It may seem silly to stop work for such small injuries.

But no matter how healthy you are you cannot afford to take chances with infection. The small wound may be unimportant at first; but DELAY in caring for it can make it serious.

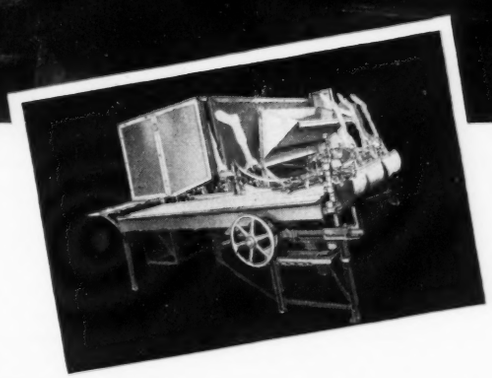
1. Stop whatever you are doing long enough to get the right kind of first aid treatment.
2. Do not touch an open wound, or wash it out, or use a rag to wrap it up. A little bleeding helps to flush out harmful germs.
3. Never put adhesive tape over an open wound.
4. Do not suck a wound, excepts perhaps in rare instances of snake bite or dog bite.
5. Do not break blisters.
6. Permit no one but a physician or qualified nurse to remove particles from your eyes.
7. Don't use a knife or pin to remove a splinter; have the nurse or doctor do it.

—*National Safety Council*

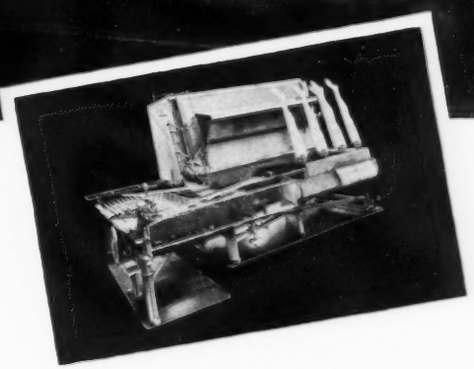
# PROCTOR *Automatic* BOARDING MACHINES

## for *Highest* Production and Quality

Two machines with but a single "thought"—that is, to produce superior results at the highest production, the lowest cost and the greatest working comfort for the operators. Whether it's the sheerest women's hosiery or men's socks, Proctor & Schwartz Automatic Boarding Machines are bringing these advantages and *more* to several hundred of the most prominent mills throughout the world. The two types of modern "Highest Quality with Highest Production" boarding machines, shown below, will be in operation at the Knitting Arts Exhibition, Philadelphia, April 25th to 29th. It will *pay* you to see them.



**MEN'S HALF HOSE MACHINE** 10¾ ft. wide, 9½ ft. deep—Reasonable production, 390 dozen pairs in 8 hours.



**MACHINE FOR WOMEN'S HOSIERY** 11½ ft. wide, 9½ ft. deep—Reasonable production, 212 dozen pairs in 8 hours.

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Greensboro, N. C.

# An Eye on the Knitting Mills

Archer Hosiery Mills, Columbus, Ga., a modern full-fashioned hosiery plant, which was described in detail in the February issue of Cotton, have let a contract for equipment to air-condition the entire plant. The knitting room was already air-conditioned. This is believed to be the first complete installation of its kind in the hosiery industry. An additional building will be erected to house the equipment and apparatus.

Melrose Hosiery Mills, High Point, N. C., has begun building a plant for the manufacture of full-fashioned hosiery. This is an extension of the company's other mill which makes seamless goods. At the present, 12 new Reading machines have been purchased, but plans are to increase the size and production of the plant later. The new plant will be 115x150 feet.

As reported in the March issue of Cotton, a full-fashioned hosiery mill will be started at Dayton, Tenn. It has been learned that A. C. Broyles is chairman of the board and that Walter Schroeder, Niota, Tenn., will operate the plant. It is understood that operation of the plant will be started at a cost of approximately $10,000.

Warren R. Spivey, owner and manager of the Waldridge Knitting Mills, Dayton, Tenn., will move his mill to South Pittsburgh, Tenn., early this summer. The plant will occupy the Ingersoll building and additions such as boiler and engine room, machine shop, etc., will be erected.

It is understood that the citizens of Hillsville, Va., are negotiating with T. J. Wallner, president of Virginia Maid Hosiery Mills, Inc., and Wallner Silk Hosiery Mills, Inc., Pulaski, Va., to start a similar plant at Hillsville. The proposed plant would employ about 300 persons.

Oscar Nebel Company, with plants in Philadelphia and in Virginia, is building a glass block mill 130x167 feet at Verona, Va. The headquarters of the company will be moved to Staunton, Va., at an early date, it is reported. This company is gradually removing its property to the South.

The Allen-A Company, Kenosha, Wis., for 46 years the largest plant in the city, will move its operations to its Bennington, Vt., plant and abandon all production in Kenosha. The Bennington plant manufactures swim suits, men's hosiery, and sportswear.

Douglas (Ga.) Silk Products Company has completed a new building 55x230 feet. Silk hosiery will be manufactured. 15 additional machines and auxiliary equipment have been put in the mill. The goods are shipped East for dyeing.

At the Knit Products Corporation, Belmont, N. C., work has been going forward rapidly on the installation of 50 additional knitting machines and auxiliary equipment. The new equipment doubles the size of the plant. This is a full-fashioned mill.

Work has started on the plant of the Shenandoah Knitting Mills, Inc., Shenandoah, Va. It will be built in units, the first costing $40,000 and should be ready by the first of June. Total expenditures on the various units will be $200,000.

J. O. McAuley has purchased the Statesville Hosiery Mill, which has been idle for several months pending settlement under bankruptcy proceedings. It is understood that the plant is operating.

Huffman Full-Fashioned Mills, Inc., Morganton, N. C., is the name of a new mill to be placed in operation soon. The plant will employ about 125 persons.

Owen-Osborne, Inc., Gainesville, Ga., have completed a one-story addition to the plant and further expansion programs include additional machinery for full-fashioned hosiery.

R. A. Knitting Mills, Hagerstown, Md., are reported as discontinuing operations because creditors cannot agree on a plan of reorganization. 300 persons will be thrown out of work.

A charter has been granted Cape Charles (Va.) Hosiery Mills, Inc., to manufacture and deal in hosiery. Authorized capital is $50,000. George J. Yarwood is president.

The assets of the bankrupt Huntley-Jackson Company, High Point, N. C., have been purchased by W. L. Jackson, who will re-organize the company to manufacture half-hose.

Lumb Knitting Company, Pawtucket, R. I., has liquidated. The building and equipment was purchased by H. P. Goldberg, president, Eagle Yarn Company, Providence, R. I.

It is reported that Bryan Hosiery Mills, Inc., Chattanooga, Tenn., are establishing a unit of the plant at Quitman, Ga., which will cost about $20,000.

Granada Knitting Mills, Inc., Indianapolis, Ind., have been granted a charter. Samuel J. Mantel is the resident agent. The firm will manufacture silk hosiery.

A knitting mill will be started at Ware, Mass., under the direction of James F. Nields, Jr., formerly general manager of the Ware Valley Manufacturing Company.

Glenn & Coble Knitting Company, Burlington, N. C., is a firm which will manufacture half-hose. It will occupy the old Flint building.

Northern interests are considering the old Catawba Mill building at Mount Holly, N. C., as a possible site for the establishment of a new knitting plant.

The knitting mill at the penitentiary at Nashville, Tenn., has begun operations. Several types of knitted goods are manufactured.

A hosiery mill will be begun at Fayetteville, N. C., by E. C. Sanders, E. I. Pennington, and George Fowler, all of Burlington, N. C.

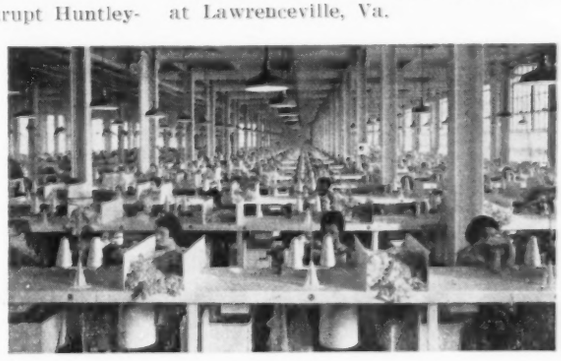
Lillian Hosiery Mills, Albemarle, N. C., has installed new high speed full-fashioned hosiery machines, bringing the total number of machines to 21.

Columbia (Miss.) Knitting Mills will have the production of the plant doubled when all of the contemplated additional machinery is installed.

Negotiations are under way for the establishment of a full-fashioned plant at Lawrenceville, Va.

**A modern and up-to-date seaming department in a large full-fashioned mill.**

Courtesy
Textile Machine Works



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# A DOUBLE FEATURE

## at the Knitting Arts Exhibition

American Safety Table Company presents two attractions you can't afford to miss . . . the American Ball Bearing Seaming Table and Looping Table.

*Be certain to see these two four star headliners*

A PARTIAL LIST OF USERS

Artcraft Hosiery Mills, Inc.
Asheville Hosiery Co.
Apex Hosiery Co.
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Atlanta Knitting Mills
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Blackwood Silk Hosiery Co., Inc.
Blue Line Hosiery Mills, Inc.
Blossom Products Co.
Cambria Silk Hosiery Co.
Campbell Silk Hos. Mills
Colonial Knitting Mills
Corinth Hosiery Mills
Continental Undergarment Co.
Diamond F. F. Hosiery Co.
D. S. & W. Hosiery Co.
Elliott Knitting Mills, Inc.
Endurance Knitting Mills
Evenknit Hosiery Mills
Gilbert Knitting Mills, Inc.
Gotham Silk Hosiery Mills
Greensboro F. F. Hosiery Mills
Geissler Knitting Mills
Holeproof Hosiery Co.
Industrial Hosiery Mills
Interstate Mills, Inc.
Interwoven Mills, Inc.
Kraemer Hosiery Co.
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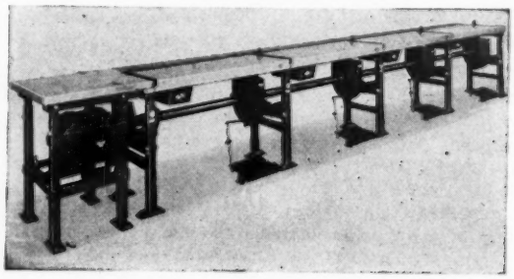
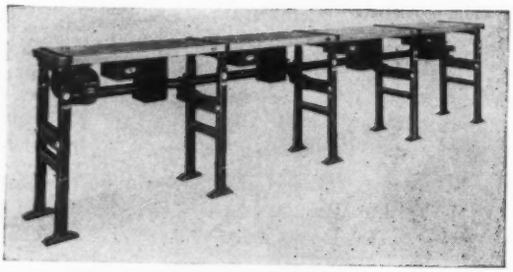
Larkwood Silk Hosiery Mills
Lynchburg Hosiery Mills, Inc.
Mapleshade Hos. Mills, Inc.
Mock, Judson, Voehringer, Inc.
Oakbrook Hosiery Co.
Owen-Osborne, Inc.
Pure Silk Hosiery Co.
Phoenix Hosiery Mills
Real Silk Hosiery Mills
Standard Hosiery Mills
Stimpson Hosiery Mills, Inc.
Vanity Fair Stocking Co.
Van Raalte Hosiery Co.
Venus Lingerie Company, Inc.
Tamaqua Underwear Co.
Waynesboro Knitting Co.



**AMERICAN SEAMING TABLE**

Especially designed for full fashioned seaming, mock seaming, cotton burlap and canvas bags, this table is built extra heavy with 3" edge grain maple front planks, thereby reducing vibration to a minimum. A ½ H.P. motor will operate ten machines.

**SAVE with Safety**



**AMERICAN LOOPING TABLE**

Extra heavy table, with a ½ H.P. ball bearing direct connected speed reducing motor which will drive all types of loopers at their correct speed.

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# AMERICAN SAFETY TABLES

AMERICAN SAFETY TABLE CO., INC. EIGHTH AND OLEY STS., READING, PA.

# TRENDS and HIGHLIGHTS of the KNIT GOODS MARKETS

## Seasonal Improvement in Knit Goods Getting Underway but Sub-Normal. Full-Fashioned Wage Decisions Help Hosiery. Spring Underwear Improving Slowly

**Philadelphia, March 16, 1938.**

HOSIERY AND UNDERWEAR MANUFACTURERS in this section of the country have had a very dull time of it so far this year, but in late February and during March to date, improvement, especially in hosiery mill schedules, has come. This is seasonal and under what manufacturers say they should be having with Easter in the offing. Drastic mill curtailment in both branches of the industry has further reduced stocks and in some instances knit goods jobbers are finding that this is preventing them from obtaining immediate delivery of some special types of goods, a development from which more will be heard in the latter months of this year. Some feel in fact there is a disposition to postpone commitments as much as a year ago there was a tendency to overbuy. Either policy if overdone can hurt later. At any rate, improvement in the statistical position of the knit goods trade is continuing with retail sales holding up much better although showing declines from this time last year, when compared with production schedules of mills. Spring demand will be better than last month's volume but far under March, 1937. Interest in spring underwear is expanding but that in the coming fall lines is not important. Attractive prices for the next season are being made by knitters in underwear cotton numbers.

## Full-Fashioned

Knitters of full-fashioned in both the Philadelphia and Reading sections are working more actively than last month. Makers of branded goods have so far this year been much more active than those on the other type hosiery and now the unbranded ones are coming into more active rates as buyers begin to place, but very cautiously, their Easter commitments. Prices of the low-end and medium priced numbers are steady and although some buyers look for slight cuts in such finer stockings, as 45 and finer gauges, as a result of the new wage decisions, manufacturers here and in Reading say these are not coming as a rule although there may be a seller here and there willing to shade until business gets brisker. Retail prices of full-fashioned have been cut 10c per pair, the 79c lines going to 69c, as a result of cuts made by knitters early this year but lower prices have not caused any larger retail interest. Some retailers say they preferred the old selling level because they had a larger dollar volume, and in many instances were able to raise the purchase from 89c stockings to $1.00, which is not an easy jump from 79c or 69c. Jobbers say their stocks of full-fashioned are low and that they must from now on place immediate delivery orders with mills to get Easter goods in on time. This will help the mills later this month more than it has yet.

## Anklets

Demand for anklets has been slow this season and orders are late. Jobbers say they should have received much larger early March orders than they did so that if the season is to grow into anything to compare with 1937, which was exceptionally good, then a start will have to be made shortly. Jobbers say the retail price tags on such lines will not be much different from a year ago. Manufacturers in some instances have reduced prices compared with a year ago but in others they have put better yarn into the goods which pleases distributors in many instances. Warm weather is expected to put a spurt in these goods that will be felt at the latter part of the season by knitters. The 1938 lines are made of mercerized in most instances but rayon is more important in some than a year ago. Production of anklets last year showed the largest percentage gain of any section of the industry so that knitters expect this expansion trend to continue this year but at a much slower pace than in 1937. This type goods is favored by more consumer groups each year favoring a good though late season in them for the spring of 1938, at least from the volume standpoint. Profits for knitters are a different matter.

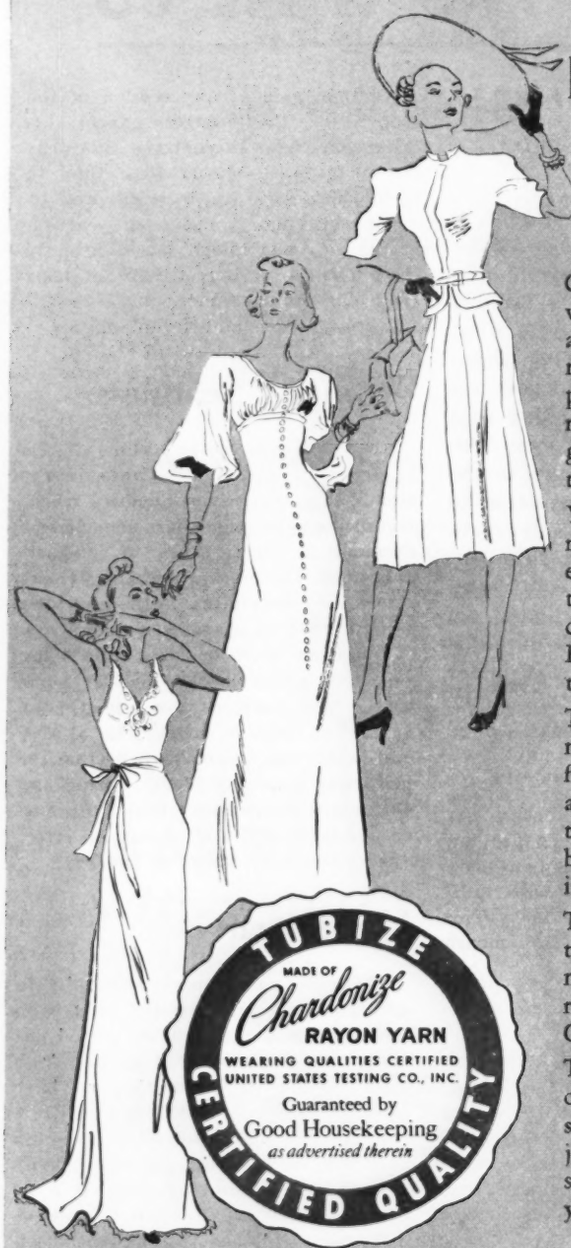
## Women's Seamless

There has been no important change in prices of women's seamless in the month except in rayon numbers where record lows for some years are current. Demand for these lines is considerably above the market average. Wholesalers are commenting on the new lows being quoted on women's seamless rayon numbers, $1.45 on 260-needle being reported, which is the low for some time. The previous low recalled by buyers on similar goods was $1.47½ and before the recent yarn decline the price was generally $1.60. Cotton and silk numbers continue around the lower levels that were placed in effect during the first weeks of the year.

## Underwear

There is improvement seasonally in spring underwear styles but interest in the recently-opened and low priced fall goods has not developed as yet from any type buyer. Some buyers have stocks of heavy goods left over from the previous heavyweight season and they will not be able to buy heavily for the next season until they sell some of these holdings, in such lines especially as men's heavy numbers in cotton, as well as men's wool half-hose. Yet manufacturers' prices were named under the spell of lower cotton and yarn prices than now, which may stimulate interest from those who fear manufacturers will not long keep these levels once buying starts for fall. Polo shirts are showing improvement and it looks like knitted styles will get back business they thought lost to woven goods, which is a helpful development for underwear manufacturers who make these garments. Prices on men's wool-spun ribbed union suits, shirts and drawers are lower than last year,

# Where is the little pink rayon bloomer of yesteryear?



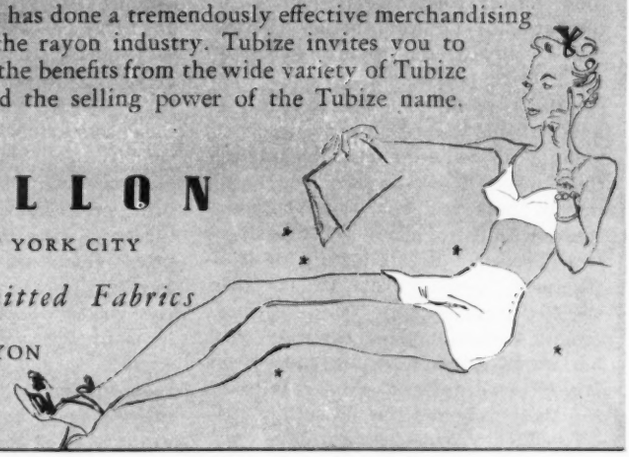
Can it be that the ravishing creature we know as today's woman . . . that exquisite creation with sylph-like figure and skin of alabaster . . . once roamed the jungle, that cavemen battled for her favor? But, if that thought gives you pause, what of the miracle you see in the magnificent rayon evening gown she wears and the lovely undergarments that wrap her body in luxury? Once upon a time they were a pair of little pink rayon bloomers.

Yes, Rayon has had its evolution, too. The little pink rayon bloomer of yesteryear has metamorphosed into an endless array of garments and fabrics . . . of captivating textures and surpassing beauty. The amazing yarn that came from a chemist's test tube to knock timidly at Fashion's outer gate now sits with the elect in Fashion's throne room.

The miracle of Rayon's evolution is understandable. Being man-made, Rayon owned capabilities denied its sister fibres of animal and vegetable origin. Its talents were, and are, as limitless as man's own inventive genius. And that inventiveness has combined with Rayon's adaptability to create yarns and fabrics of beauty and serviceability that were undreamed of back in the pink bloomer days.

Tubize has played a leading part in the astonishing evolution of Rayon. But Tubize was not satisfied with merely making good rayon; Tubize removed the guesswork from rayon buying by identifying its product . . . by the Tubize Certified Quality Plan.

The Tubize identification has been welcomed by the fabricator, garment manufacturer, retail merchant and consumer. It has done a tremendously effective merchandising job for the rayon industry. Tubize invites you to share in the benefits from the wide variety of Tubize yarns and the selling power of the Tubize name.



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*Viscose and Acetate Rayon Yarns and Knitted Fabrics*

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**YOU ARE CORDIALLY INVITED TO VISIT THE TUBIZE BOOTHS 408-409 AT KNITTING ARTS EXHIBITION, COMMERCIAL MUSEUM, PHILADELPHIA, APRIL 25-29**

varying according to the wool percentages. Prices heard on such lines as the Faith Mills and Utica are down from 5 per cent to slightly over 12½ per cent with all wool numbers showing the greatest change. The Utica men's cotton ribbed lines prices are off 10 per cent from a year ago and men's union suits about 11 per cent from a year ago. The men's cotton ribbed line from Anniston is priced at $5.62½ for the 12-pound ribbed suit with a differential up for other weights.

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## Men's Half-Hose

Men's half-hose has been the dullest part of the selling market, according to jobbers, and yet better buys in these numbers are being offered by manufacturers than any time previously. Wholesalers are commenting on the better grade hose that knitters offer this season. They did not cut prices so much in view of the lower rayon yarn levels but instead chose to improve the quality of the merchandise and this has given jobbers the best-looking spring line of such hose they have ever offered. With warmer weather these will surely cause an expansion in sales. Jobbers say they can offer a fair grade rayon and cotton half-hose to retail at 15 cents per pair in the low-end goods.

## Northern F-F Wages Uniform by Arbitration

Late in February and early in March arbitrators in Philadelphia and Reading handed down decisions placing wage schedules in these two sections on the same basis, whereas previously Philadelphia rates in the mills having a national contract with the American Federation of Hosiery Workers were approximately 6 per cent above those in the group of mills in Reading, that at the middle of last year signed an accord with the union through the Keystone Hosiery Manufacturers, Inc.

The uniform rates in the North will help Philadelphia mills and early in March, Joseph Haines, Jr., executive secretary of the manufacturers' group, the Full-Fashioned Hosiery Manufacturers of America, Inc., said: "A new flow of business to Philadelphia hosiery mills has already begun as a result of organized labor's acceptance of lower wages here." With the new rates effective March 7 in the Reading area, practically the entire full-fashioned hosiery industry in the North is on a uniform labor cost basis and Mr. Haines said that installation of modern machinery in Philadelphia plants now is contemplated. He disagreed with the often-expressed union view that obsolescent northern machinery is a major difficulty in meeting southern competition.

"New equipment," he said, "would only be an element, not the prime factor in improving Philadelphia's competitive position. The wage differential of 40 to 75 cents a dozen pair of hose, selling at $6.00 to $7.00, remains the most important factor but buyers who were hesitant to make commitments during the possibility of labor difficulties here have abandoned hand-to-mouth buying and are placing more orders here," Haines said, adding that production early in March in the Philadelphia mills exceeded the 40 per cent of capacity scale recorded in January. In commenting on the arbitrated decision, Emil Rieve, president of the American Federation of Hosiery Workers, said "It should create a situation that should enable northern manufacturers to tackle the problem of southern competition as a unit and should help in the whole problem of national stabilization."

## Philadelphia F-F Wage Decision

Continuation of the basic rates of pay previously fixed in the national contract, but readjustments in extra allowances, preferential and out-of-line rates as well as such rates as have become obsolete and not adapted to improved methods of the hosiery industry, were announced by the Wage Rate Tribunal set up last month to act upon demands of the Full-fashioned Hosiery Manufacturers of America for wage reductions presented to the American Federation of Hosiery Workers. Adjustments ordered by the board, which are binding on both parties, were to have become effective February 28, 1938. In one part of its decision the board said "the only changes in existing rates that are justified at this time are changes in extra allowances preferential and out-of-line rates that have developed inequalities in earnings and costs as well as such rates as have become obsolete and not adapted to the improved methods of the industry." Among the readjustments ordered to equalize the earning power of workers of similar skill and responsibility are new rates for operators of 51-gauge machines, new boarding rates and new extras for three-carrier operations.

Due largely to the high rates which have prevailed on the modern 51-gauge machines, employers have installed little of this kind of equipment. It is expected that the new rate will act as an inducement for employers to use more machines of this type. Thread differentials were brought closer into line by some of the adjustments. They involve revision of allowances for the picot modified heel, silk sole and toe. To stimulate the installation of new equipment the Wage Rate Tribunal ordered adjustments of the speed and section allowance which heretofore had been limited and thus tended to discourage the installation of that type equipment.

Membership of the arbitration group included Dr. William M. Leiserson of Washington, chairman; George F. Lang, of Philadelphia, representing the Full-Fashioned Hosiery Manufacturers of America; and Isadore Katz, of Philadelphia, attorney for the American Federation of Hosiery Workers. A dissenting opinion was filed by Mr. Katz, in which he argued that there had been no significant change in the factors upon which wages depend since the national agreement went into effect last August. He maintained that an adjustment of extras would not aid either the employer, the employee, or the consumer, and that this matter was one for direct negotiation and could not properly be ordered by the board

## Reading Hose Pay Adjusted to Wage in Philadelphia District

A slight reduction in wages for hosiery plants in the Reading area was effected by a wage arbitration decision handed down March 6 by Dr. A. H. Williams of the University of Pennsylvania, in negotiations between the American Federation of Hosiery Workers and 15 firms which are members of the Keystone Hosiery Manufacturers, Inc. The basic rates were increased slightly and the extras lowered and in commenting on the decision Dr. Williams said that it was not a drastic cut in wages and should not, in his opinion, result in lower prices for full-fashioned hosiery from mills in that section.

Dr. Williams said "I believe that the interest of both distributors and consumers of full-fashioned hosiery are being fully served by the present price structure. The decrease in labor costs awarded to the manufacturer has been only a slight one and if it results in further instability in hosiery prices as a result of higgling by the distributors to have the decrease passed on to them and eventually to the consumer, the award will do more harm than good. I make this statement in the light of my experience as assistant director of the Consumers' Advisory Board of the NRA. What the hosiery industry needs is a chance to make a fair profit. Unless it can do this, the prospect for eliminating antiquated, short-section, low-gauge machinery, and thus get on to an efficient producing basis, is not a bright one. Many of the manufacturers are in effect distributing part of their mill with each pair of hose they sell in view of the fact that some prices are below the cost of production."

Following examination of the decision, Emil Rieve, union president, said "The present award by Dr. Williams must in the light of the Leiserson of last week, be regarded as highly constructive and in my judgment will be accepted by most employers and employees in Berks County as a wise and fair decision. In practice, this means a slight wage increase for the lower-paid hosiery employees in the Reading mills, although it also means that, as in the rest of the country, some of the higher paid workers do get a cut in their rates." He said he did not think the cuts in extras would work any serious hardship on the affected workers.

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## Wage Decisions Mean Only Small Hosiery Reductions

A reduction of approximately 18 cents per dozen in direct labor cost on 4-thread 42-gauge, 1500-1550 course three-carrier full-fashioned stockings, with silk welt under the arbitrators' award of February 21, is shown in figures prepared by several manufacturers. According to these figures total direct labor on this stocking under the new rates will be $1.9447 as against $2.0289 before the reduction and $2.0256 prior to last August when the union scale was increased. It was indicated that the reductions were a negligible cost factor on 7-thread stockings, whether 45-, 42-, or 39-gauge.

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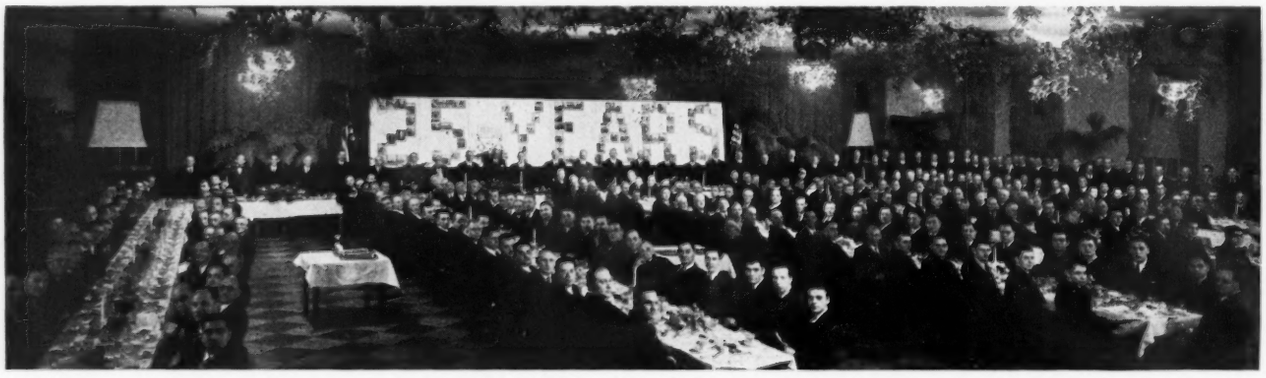
## Torrington Cited in Advertising Awards

An advertising campaign of The Torrington Company, Torrington, Conn., on the new Torrington needle bearing was cited for honorable mention in the Annual Advertising Awards for technical excellence and ethical soundness in industrial advertising. The campaign, prepared by the Hazard Advertising Corporation, New York City, was designed primarily to give a concrete factual story to a design-engineering-minded audience. It is especially noteworthy for the clear straightforward presentation of pertinent information on a highly technical product. A number of the advertisements in the campaign, reprinted in booklet form, will be of interest both to engineers for the information which the advertisements contain and to advertisers interested in effective methods of presenting a technical sales story in print.

## Textile Machine Works Honors Its Veterans

Veteran employees of the Textile Machine Works, Reading, Pa., were tendered a banquet early in March, and 88 employees with a service record of 25 years or more were presented gold watches as a material token of the company's appreciation for long and faithful service. The presentations were made by Ferdinand Thun and Henry Janssen, founders of the firm, in the presence of members of the company, foremen, and all employees with 20 years of service. John E. Livingood, vice-president, addressed the veterans and pointed out that 7.2 per cent of the company's employees have a service record of 20 years or more, in contrast with the average for similar groups in American industry, which is only 4 per cent. Credit was given to the employees for making the organization a successful enterprise. Among the 88 receiving awards was Henry Lorah, first employee, who started with the partnership of Thun and Janssen in 1892, when they started their little machine shop in Reading.



The banquet tendered in honor of the veterans of the Textile Machine Works.

# Hose Union to Hold Convention in South

In view of the two recent arbitration decisions affecting full-fashioned mills in the Philadelphia and Reading districts, the opinion has been expressed that with the entire northern industry "set" so far as wages are concerned for the near future at least, the hosiery union will now devote its major activities to organization work in the South, against which northern manufacturers say it is impossible to compete in most instances. Manufacturers in the North claim that even during recent dull weeks most southern manufacturers have been able to operate at very much higher rates than the mills in the North.

In view of this, the recent announcement of the American Federation of Hosiery Workers that it will hold its annual convention May 2 in Charlotte, N. C., has created attention. Emil Rieve, head of the union, said it would be "the springboard for intensification of organizational efforts in the South." This will be the twenty-seventh annual meeting of the union but it will be the first in the history of the organization to be held in the South. At the same time, the union went on record as opposing the arbitrated wage decisions and means to correct the alleged unfair situation will be studied at this Charlotte conclave.

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# Hosiery Workers Strike Against Arbitration Award

Union hosiery workers of the Philadelphia area refused to accept the arbitration award, reducing the rates on extras and staged a general but short-lived walk-out which affected all but about five hosiery mills in Philadelphia and called out approximately 6,000 workers in the New Jersey section. In commenting on the decision, William Leader, president of Branch No. 1, of the hosiery union, said reductions in total earnings under this agreement would amount to 11 to 22 per cent of the workers' pay, and said the wage cuts would average about 15 per cent. On February 21 this local of the union adopted a resolution calling for a strike to begin February 28. This walk-out received the condemnation of the national officers of the hosiery union, who said that while they were not in favor of the terms of the award, it was necessary for the union to live up to the terms of the contract and that any attempt to set aside the award would react unfavorably upon all organized labor in the United States. The strike was called off March 1 at a special meeting of the union, attended by almost 6,000 members when it voted approximately nine to one to return to work under the terms of the arbitration award.

Alexander McKeown, national vice-president of the union, promised three steps would be taken: (1) All legal machinery will be invoked in an attempt to have new arbitration set in motion looking toward retraction of the arbitration award; (2) the national executive committee will be called into session to seek new arbitration to obtain wage increases; (3) new national delegates will be elected and authority will be taken away from them probably, permitting them to make sectional or district wage agreements and thereby creating a different scale of wages in different parts of the industry. The walk-out was prolonged until March 4 to give the out-of-town locals that had struck in sympathy time to receive notification and also to permit as many as possible to attend the scheduled auction of the Brownhill & Kramer plant scheduled for March 3.

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# Kayser Package Receives Gold Award

Kayser hosiery, packed in an unadorned, oval-shaped transparent box, was chosen for the gold award in the rigid transparent group of the 1937 All-America Package Competition sponsored by *Modern Packaging*. Pleasing visibility of the hosiery is achieved through clever packing. The containers hold either four or six pairs of the hosiery, rolled in such a fashion to show the Kayser markings and identifications. The absence of any printed decoration on these containers enhances their re-use appeal.

Wins Gold Award

The cover has ribbing around the top edge for decoration and strength. The box has a rolled edge around the bottom for greater rigidity. A black silk cord, with multi-colored tassel, runs through metal-edged eyelets on each side and ties over the cover to keep it in place.

The prize-winning package was designed and manufactured for Kayser Stores of New York City by Jos. H. Meyer Bros. of Brooklyn, using "plasacele" cellulose acetate plastic, a du Pont material.

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# Apex Raises Claim

Apex Hosiery Co., Philadelphia, raised its damage claim against the American Federation of Hosiery Workers, Branch No. 1, Local 706 from $3,000,000 to $3,515,872 for the riot wreckage of its plant last May and June in an amended statement of claim filed in the Federal District Court in Philadelphia. Filing of the amended statement was regarded as indicating the company's intention to press its claim against the hosiery union local including William Leader, president, but court attaches said trial of the suit probably will not be held before next October. Apex first filed suit May 28 of last year for $3,000,000 under the Clayton Act. Included in the list of damages sustained by the company as a result of the sit-down in its plant last year, it is an item of $550,000 for the loss of profits on 100,000 dozens of manufactured hosiery, which the strikers refuse to let the company deliver and the loss from having to suspend operations for six months after the strikers left the plant.

At approximately the same time this amended statement was filed, it was announced the Apex Hosiery Company would operate as a closed shop beginning March 4, 1938. The union, at a hearing before Edward F. McGrady, former Assistant Secretary of Labor and arbitrator, showed conclusively that it had a substantial majority of Apex workers signed as members. It was unnecessary for the arbitrator to make any decision because the company admitted the superiority in numbers of union workers. William Leader, of the union, claimed 2,050 out of 2,400 workers. The hearing before the arbitrator was held in conformance with the agreement signed last year ending the long Apex strike, which said that at the end of seven months the union must show its strength among Apex workers to secure a closed shop.

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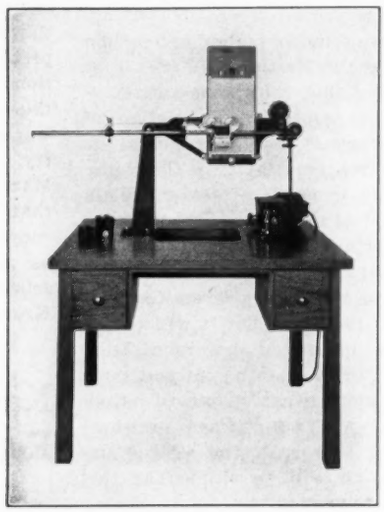

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# Auction Sale Meets Union Opposition

Despite the opposition of former employees and sympathizers, the shattering of mill windows and attempts to crash the police guard at entrances, auctioneers conducted a liquidation sale of the machinery and equipment of Brownhill & Kramer, Inc., a full-fashioned hosiery manufacturing firm in business in Philadelphia for almost half a century. The sale, held March 3, was a renewal of the auction scheduled two weeks previously, which was discontinued when the former employees created so much disturbance. The total realized from the sale of the machinery was $125,000 and an official of the company stated this represented an original investment of about $800,000. The union opposed the sale of this equipment because of the loss in jobs in Philadelphia and also because it has opposed the branch plant which the Brownhill & Kramer firm founded some time ago in Coudersport, Pa., where, the union claims it is operating to escape the union influence.

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# Textile Manufacturers Oppose British-American Treaty

Many branches of the textile industry, both cotton and wool, have registered strong opposition to the proposed British-American trade treaty which Secretary of State Hull is now considering. Textile manufacturers fear that imports of textiles made in foreign plants where the wage rates are considerably under the American scale, will be greatly increased if this agreement is signed. Among those registering protest were underwear manufacturers from New York. Ralph M. Jones, president of the Underwear Institute, and vice-president of the Utica Knitting Mills, said that these plants will vigorously protest any reduction in tariff on textiles. Favored-nation agreements would make applicable any reduction in tariff on English textiles to all countries in the world except Germany, Mr. Jones stated. He cited Australia as one of the countries now benefiting through trade agreements with others. He further pointed out that Japan, now at war with China, would be one of the countries that would benefit from the proposed lower trade agreement on textiles with England. The cheaper foreign goods made at wage levels lower than the American, if allowed to enter under lower duty, he said, would force down wages in this country. The Underwear Institute of America joined forces with the Wool Institute and the National Knitted Outerwear Association in preventing any lower tariffs on textiles.

## FORECAST

(Opinion offered by COTTON's market correspondent)

Philadelphia, March 16, 1938.

A seasonal bulge has developed in textiles but this will be far under normal spring volume. After this flurry has passed majority opinion is that dullness will become the rule again and that no sustained gains can be hoped for during the first half of this year. What will happen in the second half depends to a large extent on developments outside the industry such as Washington and Europe. Unexpected help or injury from either or both could speed or delay fundamental improvement. Assuming no new developments from either over next few months, textile traders say outlook continue to call for caution.

Generally speaking the textile situation is improving week by week but the spring season so far is disappointing. Inventories all along the line are being reduced but more must be done, most feel, especially in the manufacturing end because opinion is that retailers have made the best progress so far along these lines with more to be done by jobbers and manufacturers, but even these are working stocks down. No further inventory losses on raw materials are feared because commodities will not go much, if any, lower.

In the knit goods markets the outlook is more promising than any time this year but no boom is in sight by any means. Spring hosiery buying will be fair but trading will be cautious and for prompt shipment. Spring underwear sales will be fair but manufacturers say held-over stocks of heavyweights may delay development of that season.

With manufacturers having high overhead, especially in view of their low operating rates and with high wages and taxes not much in the way of lower knit goods prices can be expected. Full-fashioned hosiery in the North will not be cheaper as result of wage revisions by arbitration except possibly in finer goods.

Silk has been steady to firm and activity is slowly broadening with stocks here reasonable. Not much in the way of lower prices is to be expected but neither is an important advance indicated; rather gradual hardening as hosiery buying expands. In cotton, the market is higher than a month back but recently part of the gain has been lost so that the trade looks for a fairly stable price level in this but upon more active yarn interest prices there should steady more because of the no-profit selling levels now.

In wool and worsted yarns the trend has been down but now with Government loans to growers on wools in sight there has been a steadier tone at the lowest level. This may mean the long decline in wool has ended which will be followed very shortly in yarns and goods. In fact most feel bottom levels in wool, yarns and goods are now here. In rayon the drastic price cuts in yarns early this year have brought about better demand and there are no signs this price war will break out again because manufacturers will not, on the present basis, be able to show profits they did in 1937 unless volume expands a very great deal and even then probably not.

In brief, the outlook after a less than "normal" spring bulge in textiles is for resumption of dull trading. Real improvement will be witnessed for the fall season, beginning in the summer, based on stock depletion.

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# Investigate Interstate Assets

Suspension of trading in stock of the Interstate Hosiery Mills, Inc., New York, by the New York Curb Exchange and an investigation into handling of the company's securities by the New York Attorney General's office followed disclosure early in March that the firm's assets had been overstated by more than $1,000,000 in its 1934-1935 and 1936 annual reports. The fraud was attributed to "fantastic and whimsical" notions on the part of a senior supervising accountant of the certified public accountants for the mills. The company informed the Curb Exchange of the situation; Ivan Selig, president, sent a letter to stockholders declaring that the company is wholly solvent with a surplus of at least $250,000. New accountants have been employed to make a complete new audit of the company's books for as far back as necessary.

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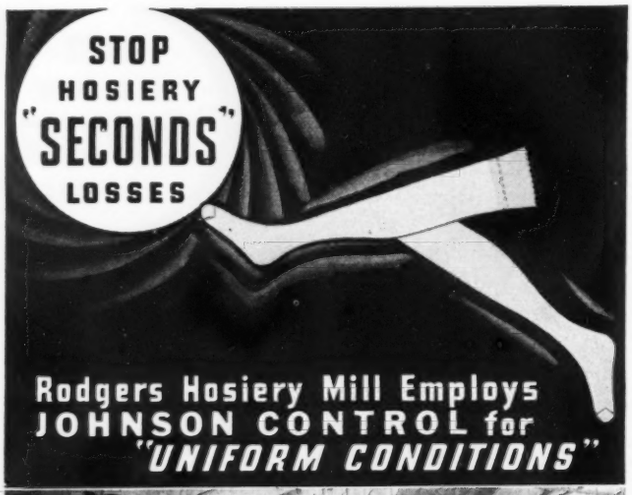
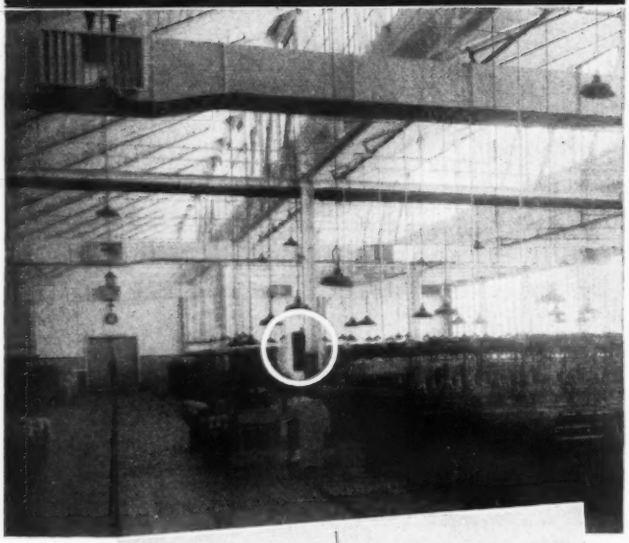
# Large Outerwear Mill Starting Southern Plant

Opening of a southern plant and the gradual removal of most of its business from Philadelphia, were given as reasons for disorder March 10 between strikers and workers at the Onyx Knitting Mills, one of the largest outerwear plants in that city. Officials of the Knit Goods Workers Union said the plant formerly employed 800 persons and that now only 150 workers are there and that the firm recently opened a plant in Mississippi and has



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been slowly moving most of its business there. Onyx last year attracted attention in the outerwear trade when it acquired its own spinning plant in New England, which produces a large part of the worsted yarns required for its knitting department.

◆

## Woolworth Crepe Hosiery at 69c

Marking their initial entry into a price bracket above 50 cents per pair for women's hosiery, the F. W. Woolworth Co. is offering 3-thread, full-fashioned crepe stockings at 69 cents per pair, at their New York store, at Fifth Avenue and 39th Street, which indicates the possibility that this chain will sell higher priced hosiery as a regular policy. The hosiery was described as "pure silk, genuine crepe, 3-thread chiffon hose, ringless with garter-stop run feature." The stocking is available also in knee-length. Previously the highest priced number in the firm's line was a full-fashioned silk ringless number at 50 cents per pair.

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## Smaller Hosiery Mill Employment

Nearly 10,000 employees in the hosiery industry have lost their jobs over the last year, a statistical bulletin of the National Association of Hosiery Manufacturers disclosed. From a total of 146,093 employed in January, 1937, the number had fallen to 136,374 in the same month of this year. Workers in seamless plants were hardest hit, the number dropping from 64,931 to 57,371 while in full-fashioned the decline was from 81,162 to 79,003. Production of all types of hosiery in this period declined 22.2 per cent but curtailment since the first of the year has brought inventories into line with consumption so that as the first half of March ends the mills are finding it necessary to step up production to meet April 1 shipment specifications.

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## Two Large Pennsylvania Mills in Bankruptcy

The Meinig Hosiery Co., Reading, Pa., on March 4, filed a petition for reorganization under Section 77B of the Bankruptcy Act in the District Court in Philadelphia. Judge William T. Kirkpatrick appointed Frank B. Carll and C. William Riedel as temporary receivers, under bond of $50,000 until April 1, when he will determine whether he will make their appointment permanent. Liabilities were listed in the petition at $1,385,491 and assets at $919,005 or an apparent deficit of $466,486. On March 7, Vertex Hosiery Mills, Inc., Allentown, Pa., also filed a petition under this section and Judge Kirkpatrick took the matter under advisement and said he would announce shortly whether he will continue the debtor in control or appoint a trustee. In the debtor's petition, its assets were listed at $1,155,205 and its liabilities at $695,546 as of December 31, admitting its inability to meet current liabilities.

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## Sharp Drop in Hosiery Imports

Hosiery imports of all kinds in January were the lowest for any month since February, 1935, totaling only 46,586 dozens, which compares with 88,860 dozens in December 1937 and 229,808 dozens for January, 1937. The sharp drop is due to smaller arrivals from Japan of the cotton hosiery numbers. The National Association of Hosiery Manufacturers points out that imports of cotton hosiery from that country were estimated to make up 25 per cent of the comparable production of this hosiery in this country. In January this year, on the other hand, imports from Japan made up only 5 per cent of the production of the same hosiery in this country. While imports of cotton hosiery declined sharply in 1937 compared with the previous year, due to the quota agreement and boycott of Japanese-made merchandise, the reverse was true for silk and wool types. Imports of wool hosiery last year amounted to 326,757 dozens compared with 277,624 dozens. The quota agreement was working according to expectations when the boycott agitation began late last fall against merchandise made in Japan. From then on, importers and those handling Japanese-made hosiery noted the stoppage of the previous expanding trend in this business.

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## Originality Needed in Underwear Industry

The Underwear Institute in one of its pamphlets cites as reasons for short profits in the underwear industry: Too little sales promotion within the industry, too little investigation for new and improved products, too little pride in the quality and distribution of mill brands. The survey also states that underwear prices not only declined more drastically during the depression, than those for all commodities, all textile products, or even all knit goods, but they recorded a net loss in average value per unit from 1933 through 1936. Underwear mills have tended more and more to handle their own sales and less and less to rely upon agents, brokers or commission houses, the survey reports. Whereas two-thirds of the producers handled their own sales in 1929, over three-quarters now sell without the aid of agents. At present, close to three-fifths of the total output of the underwear industry is sold direct to retailers.

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Courtesy Textile Machine Works.

### Abrams Southern Manager Stromberg Electric Co.

J. Read Abrams has been made southern manager of the Stromberg Electric Company, 223 West Erie Street, Chicago, Ill., and will open offices in Atlanta, Ga., his headquarters, on July 1. A. H. Woods, Jr., has been made district manager in charge of the Charlotte office of the company.

# TRENDS---THE YARN MARKETS

## Yarn Buying for Spring Lines Slow and Late. Cotton Yarns Selling at Cost Levels. Rayon Demand Improves. Worsted Barely Steady but Silk Shows Further Gain.

**Philadelphia, March 16, 1938.**

A SIDEWAYS MOVEMENT has been evident in the yarn markets this month, there being gains in silk and smaller ones in cotton but on the other hand prices of some worsted counts are lower than a month back, especially knitting numbers as 2-20s, 50s. Rayon demand has shown a somewhat broader trend as buyers feel more confident that no further price cuts are to come in the man-made fiber and it is reported producers now are around 80 per cent when some weeks back it was estimated they were around 65. Plan of the Government to loan money to wool growers is aiding the wool market and giving worsted yarns a better tone at present. Spring expansion in hosiery sales is strengthening silk sentiment.

## Cotton Yarns

Raw cotton is slightly higher than a month ago, having lost some of its gain within the last two weeks, but cotton yarn prices show very little change over this interval. This reflects a condition which has been apparent for months past in which spinners' profit margins continued to narrow until at present complaint is general from them that current selling prices represent from one to two cents a pound loss. Most spinners are asking somewhat higher prices than a month ago, but as a general rule when fair-size sales are involved prices close to the 1937-38 lows are noted. This continued narrowing of margins reflects the lack of demand from practically all of the consuming trades.

Knitting yarns are showing greater resistance to downward pressure than are weaving yarns and during the last month, demand from knitters, while small, has been relatively better than from weavers in this territory. Evidence of this is seen where higher prices have been paid for 30s single cones, than for the same size in two-ply; the former has sold as high as 27 cents, while the same quality in two-ply has been moved as low as 25½ cents. Knitting mills are following a cautious buying policy, covering only for a short time ahead and in some instances, have placed medium-size contracts to average old yarn contracts placed months ago at prices possibly 35 per cent higher than now.

**There is only a small differential at present between the finer numbers in carded and combed knitting yarns and this is giving impetus to the larger use of combed yarn by many underwear mills instead of carded. These plants see such a small difference between a high-grade carded and the cheaper combed yarns that they are attracted to it so that they may place on their garments the combed label. Late in February there was a fair volume of contracting ahead in mercerized yarns when prices lower by several cents than now demanded were obtained. At that time, knitters were able to buy 60s two-ply around 60 cents while at present knitters say that it is impossible to buy much under the list price of 63 cents for this size. Combed and mercerized yarns are being more firmly held than are carded qualities.**

## Worsted Yarns

In contrast to the higher cotton market, wool and worsted yarns have displayed an easier trend over the month. Reductions in worsted knitting yarns have averaged 2½ cents but this has been only apparent in the medium grades, the finer qualities showing no change or else slight advances over the month. There is a slightly better demand but the spring outerwear season has failed to develop to any important extent and many manufacturers of these lines are now devoting most of their attention to samples for the fall season. Spinners that a month ago were asking 92½ or 95 cents for 2-30s, 50s, are now willing to take 87½ cents with reports of a few sales being made even under this level; in knitting counts made 64s grade wool, many spinners are demanding 2½ cents higher than a month ago, which reflects a recent better demand for finer grades.

Within the last week a better feeling in the market has been apparent due to the expectation of government loans on raw wool to growers, which it is expected will help to prevent the 1938 clip from becoming too burdensome in view of the fact that a considerable portion of the old clip remains in dealers' hands. Fear of the effects of the proposed British-American trade treaty has lessened from the time when this proposal was first announced but manufacturers and spinners still express great concern over its effects and this unquestionably is holding back spring volume not only in yarns but in products made therefrom. Hearings on the proposed treaty gave the trade an opoprtunity to register strong protest and the various trade associations filed briefs.

**The 1938 bathing suit season so far as worsted yarns are concerned has been a failure, most spinners catering to this trade saying that their volume is no better than 25 per cent of normal. In men's knitted trunks most knitters have been using lastex yarn covered with rayon where they formerly used a straight worsted and in the case of women's suits, most of the 1938 production will be knitted from rayon or else will be of the so-called dressmaker type using woven fabric instead of knitted.**

## Rayon

Demand for rayon yarn has continued to improve slightly over the last month, reflecting the attractiveness of prices following the drastic cut in quotations over the early part of the year. Although the industry is far from reaching its over-sold position, of early 1937, shipments to manufacturers have increased to such an extent that producers are more active than in January. Some producers that reached a 60 per cent production rate early in the year have jumped up to about 80 per cent. Practically all of the yarn business being placed is for spot and nearby delivery which is regarded as a healthy sign since shipments represent yarn going into consumption and indicate there is no speculative buying despite the low level of prices. The rate of deliveries by producers during February showed a substantial increase over January.

Producers' stocks at the end of February amounted to a 3.0 months' supply based on average monthly shipments over the previous twelve months. The distribution of rayon yarn is estimated as follows: Hosiery, 7 per cent; underwear and outerwear, 21 per cent; broad woven goods, 66 per cent; narrow woven goods, 3 per cent, and miscellaneous 3 per cent.

## Silk

**Raw silk has been firm and more active over the last month, reflecting a seasonal expansion of conservative proportions in the hosiery industry. This trade has been buying more silk to fill actual orders, speculation in this commodity not being widespread, even though prices have given a good account of themselves during the last two months. Compared with a month ago, raw silk is approximately 10 cents a pound higher and compared with early this year, approximately 20 cents a pound higher. There has been a better demand following the reopening of Philadelphia mills during the short strike in protest against the wage decisions. Another reason for the firmness in the market was the February statistics. Silk consumption in February totaled 30,260 bales, which was practically equal to January's consumption of 30,715 bales. Mill takings, however, ran below a year ago, when the figure was 38,484 bales. Stocks as of the end of February were 43,834 bales compared with 48,678 bales a month previous. Curtailment in reeling in Japan during January and February prevented any heavy pressure on prices and the situation was aided also by the lack of competition from China.**

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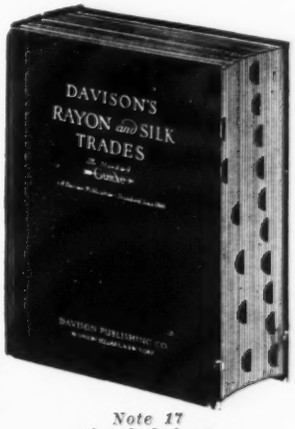


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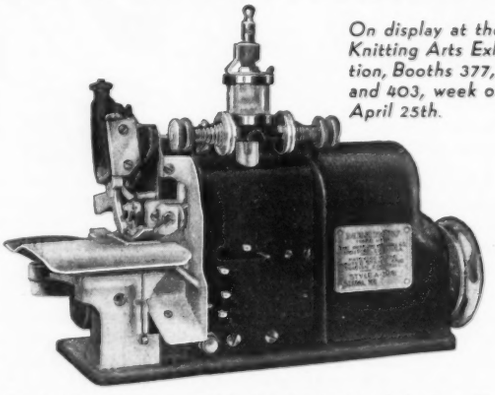

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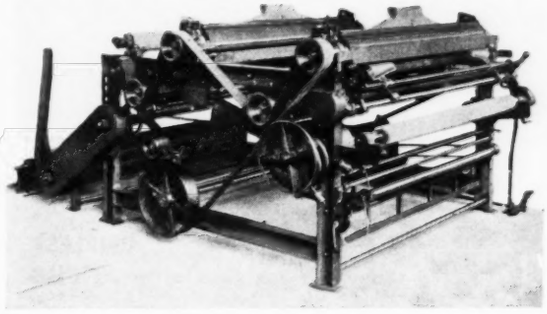

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3. *Introduction* of our Throwster Tints, including new Tints developed in conjunction with the soaking formulas which we recommend.

SPACE **398**

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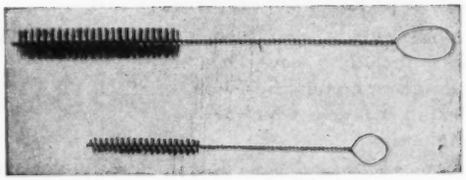

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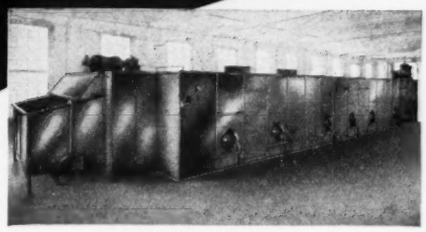

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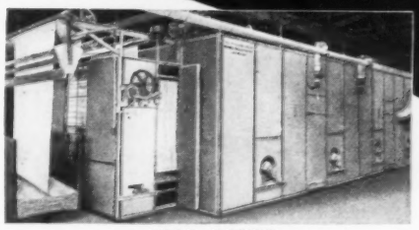

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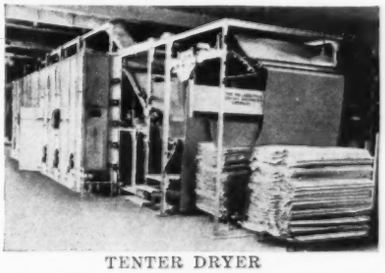

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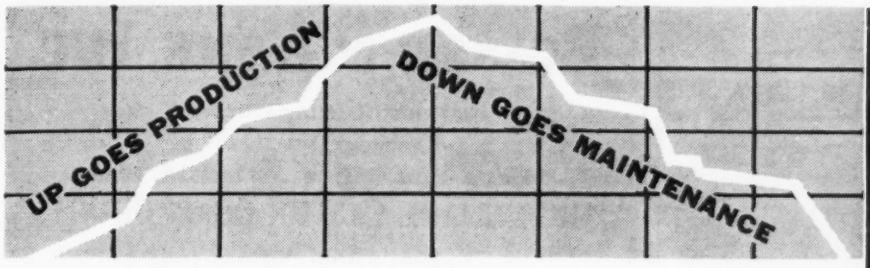


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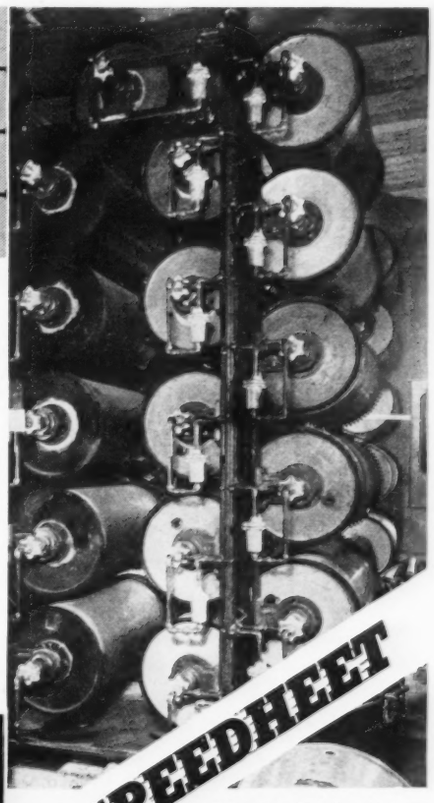


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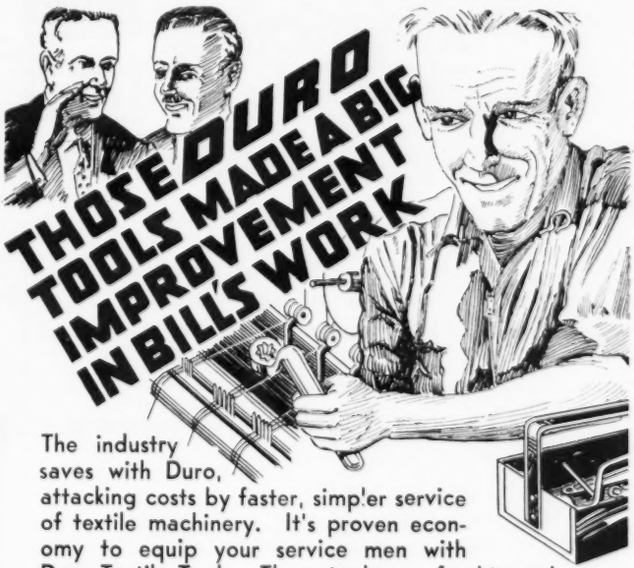


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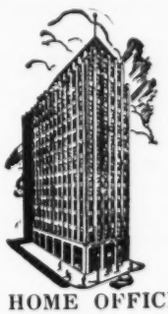

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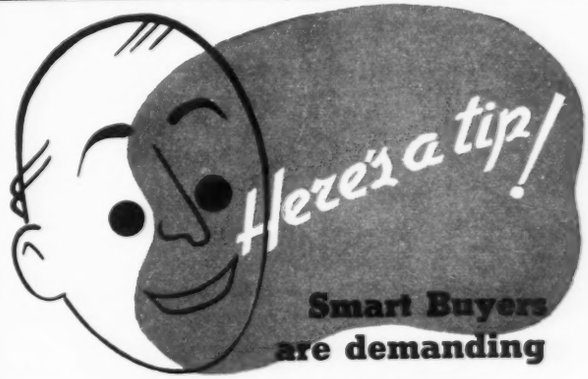


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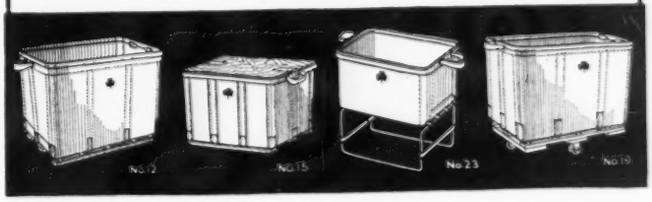

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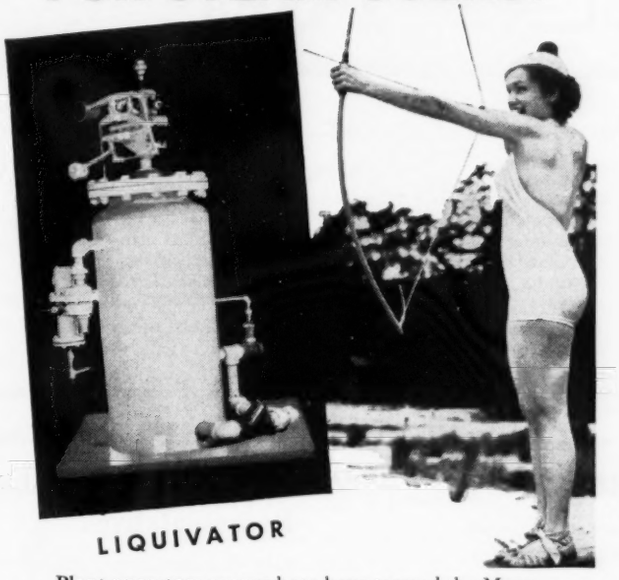

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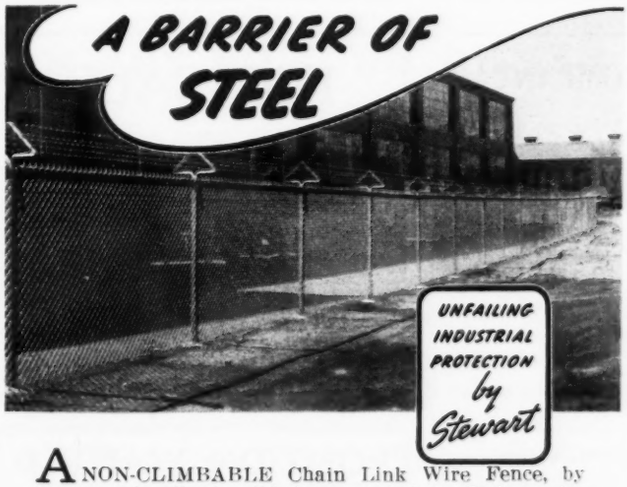


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Your experience with pipe tools makes it easy for you to see at once why this patented RIDGID Cutter saves you money on cutter wheels and gives you far cleaner cuts.

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**The Ridge Tool Company**
**Elyria, Ohio**

**RIDGID PIPE TOOLS**

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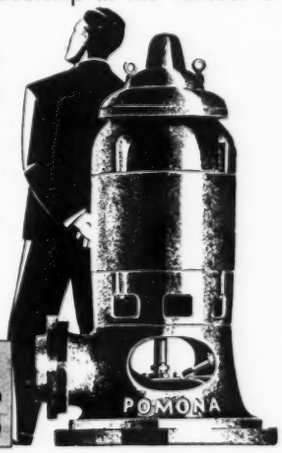


**POMONA TURBINE PUMPS**

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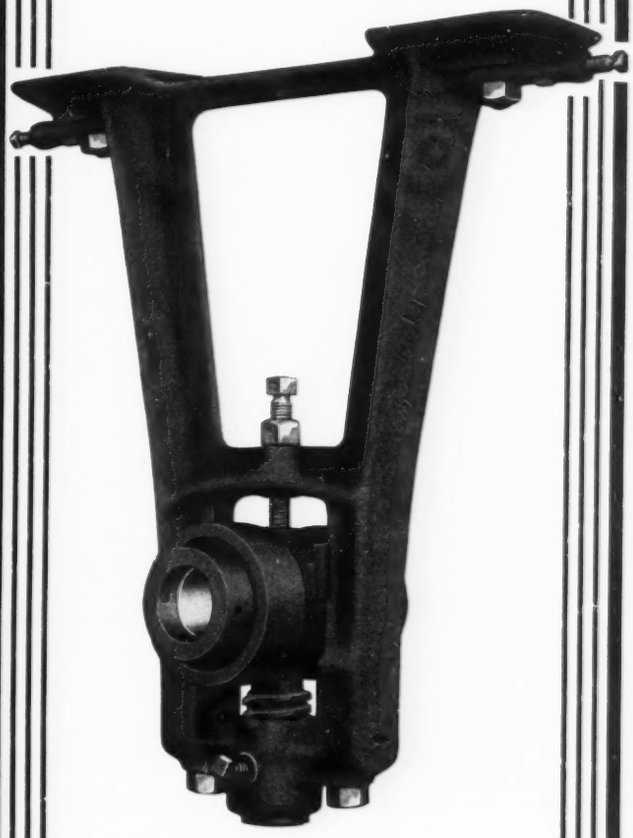

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POST HANGERS
PILLOW BLOCKS
LOOSE PULLEYS
and
SPECIAL APPLICATIONS

We have patterns for, and can furnish Ball Bearing Boxes to fit *any make and style* of Hanger Frame.

## GOLDENS' FOUNDRY & MACHINE CO.

Columbus, Georgia

*"We have furnished more Complete and Partial Pulley and Shafting Equipment to Cotton Mills than any other manufacturer in the United States."*

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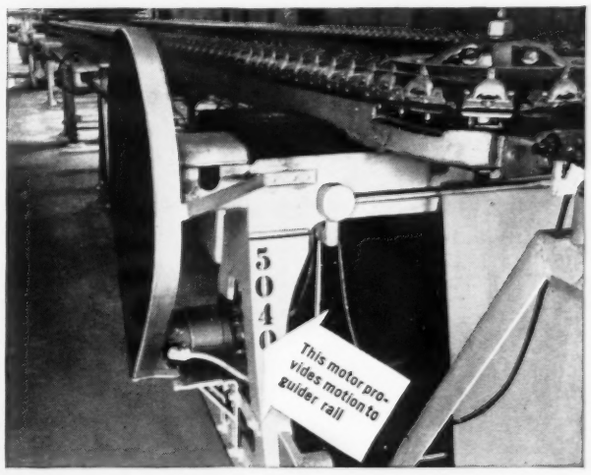
# *This G-E Guider Equipment*

## PLACES EACH RAIL CORRECTLY

## *As the Cloth Enters the Tenter*




Van Vlaanderen tenter with General Electric guider equipment. Note how this guider equipment can easily be installed on existing tenters. Pictures taken at Bradford Dye Associates plant, Bradford, R. I.

**HOW IT WORKS**

**The blades of feeler switches on each side of the entering end of the tenter are continuously in contact with the edges of the incoming cloth. Each blade exactly follows the selvage, and instantly actuates motors beneath the tenter. These G-E motors are built for quick starting, stopping, and reversing. Operating with staccato action, these motors move the rails, in or out, to the exact position for locating each clip correctly.**

WITH this electric guider equipment, the swinging rails are continually adjusted to the correct position. Thus, you can eliminate the risk of uneven tentering, delays, and spoilage, due to misplaced clips. This equipment sets a new standard of speed and accuracy. It directly contributes to the production of cloth of more uniform quality.

**Ask for further information**

To obtain details on the application of this equipment, state the essential facts regarding the operation of your tenters at present, and address your inquiry to Dept. 6-323, General Electric, Schenectady, N. Y.

**GENERAL ELECTRIC**

011-315

# Take the Main Line TO CLOSER PRODUCTION CONTROL...

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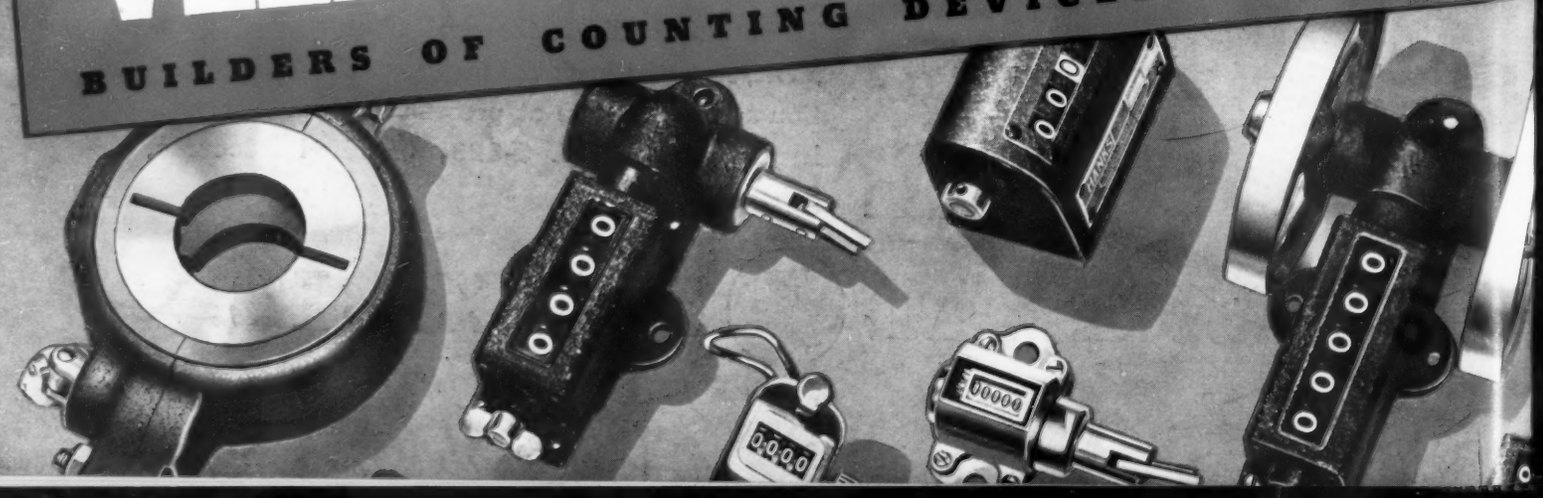
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